

# PRAGMA

A publication of Semaphore Corporation

Issue Number 7

February, 1984

## IN THIS ISSUE

Bantam Hardware Overview . . . . .	8
An Introduction to ENGLISH®, Part 6: WITH, BY and TOTAL . .	13
Vanilla, Part 7: Disposition . . . . .	18
A Bantam Diary . . . . .	22
GET, Part 2: Source Code . . . . .	30
A Preprocessor for Symbolic Statement Labels . . . . .	34
Bantam Software Overview . . . . .	40

---

## DEPARTMENTS

Utilities . . . . .	10	Wish List . . . . .	36
Producer Profile . . . . .	14	Queries . . . . .	38
Benchmarks . . . . .	27	Letters . . . . .	42
Local User Groups . . . . .	28	Games . . . . .	44

See Bantam's Pick-based micro  
Model 002 and its menu-driven SHELL.<sup>TM</sup>  
Booth #511 at "Pick Spectrum '84",  
or call your local Bantam sales office.



### **Bantam's Hardware/Software**

- MC 68000
- 1 to 44 Users/Ports
- Pure Pick Compatibility

### **Bantam's Proprietary SHELL<sup>TM</sup>**

- Menu Driven
- Integrated Workstation
- Access and Data Security
- Electronic Mail
- Built-in Word Processor

# **bantam computers, inc.**

**WESTERN:** LOS ANGELES, CA • (213) 642-4900 • JANICE McGLASHAN

**MIDWESTERN:** CHICAGO, IL • (312) 256-3797 • PAT SCANLON

**EASTERN:** PARAMUS, NJ • (201) 599-0224 • RON GELLERT

**FEDERAL GOV'T.:** WASHINGTON, DC • (202) 429-2047 • MARIE CONLEE

**bantam computers, inc.**

6033 west century boulevard  
los angeles, ca. 90025 • (213) 642-4900



# ScreenPlay

Full-screen  
Editing

On-screen  
Forms Design

Multi-page  
Help Screens

HOT Print

Easy BASIC  
Interface

Multi-value  
Fields

Custom  
Error Messages

Flexible  
Validation

**Anything else  
is work!**

**DigiCorp**

Call or write:  
1275 Fort Union Boulevard, Suite 225  
Midvale, Utah 84047  
(801) 562-2227

See us at  
**SPECTRUM '84**  
Booths 117, 118,  
203 and 204



# PRAGMA

Issue Number 7

February, 1984

Pragma is published by

Semaphore Corporation  
207 Granada Drive  
Aptos, California 95003

Entire contents copyright © 1984 by Semaphore Corporation. All rights reserved. No part of this journal may be reproduced, transmitted, transcribed, stored in a recording, retrieval or computer system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of Semaphore Corporation.

Semaphore Corporation offers no warranty, either expressed or implied, for any losses due to the use of any material published in Pragma.

MENTOR is a trademark of Applied Digital Data Systems • ALL, DATA/BASIC, ENGLISH, MICRODATA, PRISM, REALITY, REFLEX, ROYALE, RUNOFF, SCREENPRO, SEQUEL, WORDMATE are trademarks of Microdata Corp. • INFORMATION is a trademark of Prime Inc. • ULTIMATE is a trademark of Ultimate Corp.

## Some New Subscribers

Joseph Hebert  
Model Industries Inc.  
Yorkville, IL

Ray Heidrich  
Helmkamp Construction Co.  
Wood River, IL

Gary L. Sing  
Management Systems Inc.  
Stamford, CT

Gregory Swehla  
Fuller Manufacturing & Supply Co.  
Falmouth, KY

John K. Wilson  
Environmental Research Group Inc.  
Ann Arbor, MI

Robert W. Nydegger  
Coordinated Financial Services  
Salt Lake City, UT

## Back Issues Are Available!

**Pragma #1, August 1982:** ZIP Code File Design • A Program for Renumbering Statement Labels • Deriving Year-to-Date Counts • VANILLA, The No-Frills Manufacturing System: The Parts File • Molec-tron User Profile • More Memory, Fewer Reads • SYSMAP: A Cross-Reference System • How to Flag Missing Checks • 23 Wish List Items • Computing Modulos with ENGLISH® • Building ENGLISH Headings with Proc • 4 Queries • Making Item Identifiers Hash Well • Tape Handling • Patching the Exit Problem in 3.2 SCREENPRO™ • The Shell Game.

**Pragma #2, November 1982:** A Modulo Setting Program • Black Box Formatting • TRIM, DELIM and PROFILE Utilities • SYSMAP, A Cross-Reference System: File Format Input • Galinski Hamburg User Profile • LOOP vs. LOCATE • 25 Wish List Items • An Introduction to ENGLISH: Jargon • Proc Conversions • VANILLA, The No-Frills Manufacturing System: Bill of Material Input • 14 Queries • The Trouble Tree • 2 Letters • A Switchbox for 32 Ports • Security and the DATA/BASIC™ Programmer • The Cookie Game • Some New Subscribers.

**Pragma #3, February 1983:** Edit Aides • A Proc for Cross-Referencing Q-Pointers • SYSMAP, A Cross-Reference System: Remaining File Input • Rainbow Natural Foods User Profile • More BASIC Benchmark Comparisons • Justifying Ragged Output • 13 Wish List Items • Generating Monthly Column Headings • VANILLA, The No-Frills Manufacturing System: Purchasing • 5 Queries • An Introduction to ENGLISH: More Commands • Shared Site Checklist • Converting Point to Programs • 3 Letters • Generating Blank Forms • Animal, A Game that Learns • More New Subscribers.

**Pragma #4, May 1983:** Pacific Valley Bank User Profile • SYSMAP, A Cross-Reference System: Dicts and Procs • Uncompiling: Unassembling Stack Code • Left vs. Right Justification Benchmarks • 4 Wish List Items • A Comparison of BASIC Implementations • More New Subscribers • An Undocumented Editor Capability • 3 Local User Group Reports • Avoiding Saved Lists with PQ-RESELECT • Self-Documenting Reports • A Query • A Survey of Hardware that Supports Pick-Style Software • Printer Trade-Offs • An Introduction to ENGLISH: Finding files • A Letter • VANILLA, The No-Frills Manufacturing System: Purchase Order Entry • The Swati Game.

**Pragma #5, August 1983:** Interactive Systems Producer Profile • Uncompiling: Regenerating Source Code • A Day of Revelation • IBM Personal Computer vs. Microdata™ Reality® Benchmarks • VANILLA, The No-Frills Manufacturing System: Receiving • 3 Wish List Items • An Introduction to ENGLISH: Being Choosy • Converting Manual Paint to Programs • 6 Local User Group Reports • More New Subscribers • A Program that Reports File Pointer Locations • Boiler Plate Processing with Runoff™ • A New Query and an Old Query Answered • SYSMAP, A Cross-Reference System: Automation • Tape Types • 6 Letters • Permuted Index to the First Four Issues of Pragma • Amazing, a Maze Game.

**Pragma #6, November 1983:** The Ubiquitous POINTER-FILE • Uncompiling: Resolving Labels • An Introduction to ENGLISH: Syntax Overview • AccuSoft Producer Profile • Rounding Out 7 Benchmarks On 5 Machines • Designing Data Entry Programs • 12 Wish List Items • GET: An Input Processor • 5 Local User Group Reports • More New Subscribers • Do You Know Your Proc Limits? • VANILLA, The No-Frills Manufacturing System: Inspection • 2 Queries • Individual Accounts or Shared Accounts? • Lock Logic Illustrated • Password Protection • Two Undocumented Conversions • A Letter • How AMAZING Works

Send \$25 for each back issue to:

**Pragma**  
207 Granada Drive  
Aptos, CA 95003



## **Imagine:**

Inexperienced and unassisted employees creating useful reports within minutes (not hours) of logging on to your computer for the very first time.

## **Imagine:**

Never being interrupted again by a request from a co-worker for an ad hoc computer report.

## **Imagine:**

Employees creating all their own computer-generated reports, but never having to learn a complicated computer language.

## **Imagine: EnGen<sup>TM</sup>**

Now let even your most inexperienced users generate their own error-free English<sup>®</sup> commands and reports, all on their own.

Announcing EnGen, the English Generator. EnGen is fool-proof, question-and-answer software for Microdata<sup>TM</sup> computers that guides new or confused users through the creation of any English report. EnGen lets everyone apply the power of English... without the help of programmers or data processing personnel.

To order EnGen with no obligation, make your check for \$495 payable to DC Software (Utah residents must add sales tax). Mail your order in care of Semaphore Corporation, 207 Granada Drive, Aptos, CA 95003. You will then receive EnGen's source code on magnetic tape (please specify 800 or 1600 bits per inch) along with complete instructions and a license agreement to be returned to DC Software. If within two weeks of receiving your tape you are not completely satisfied with EnGen for any reason, we will authorize you to return EnGen, and we will then send you a complete refund.

*English and Microdata are trademarks of Microdata Corp.*



New - Tested

## Compensation Management System

to plan and control compensation \$'s

1. Merit Budget Planner
2. Strategic Compensation Analyst
3. Wage and Benefit Planner

Human Resource Management Software  
available from the  
HRM Software Library™ of



Dimension Software Systems, Inc.  
5500 Interstate North Parkway  
Suite 470  
Atlanta, Georgia 30328  
(404) 953-9339

## MICRODATA®

USED EQUIPMENT & SYSTEMS

- 50 MB REFLEX I. DISC DRIVES
- 50 MB REFLEX I with CONTROLLER
- 128 MB REFLEX II. DISC DRIVES (NEW)
- 128 MB REFLEX II. with CONTROLLER
- 128 K MOS MEMORY BOARDS
- 16K CORE MEMORY BOARDS
- 8-WAY BOARDS with PORTS. CABLES
- INTELLIGENT 8-WAY BOARDS
- PRISM I CRTS
- PRISM II CRTS
- ADDS VIEWPOINT CRTS (NEW)
- 300LPM PRINTRONIX PRINTERS (NEW)
- PRINTER CONTROLLERS with CABLE
- 600LPM PRINTRONIX PRINTERS (NEW)
- CORE SYSTEMS
- MOS SYSTEMS

CALL CHUCK HAAS FOR  
COMPETITIVE PRICES  
BUY-TRADE-SELL

513-528-5400

PLEASE NOTE OUR NEW TELEPHONE NUMBER

EASTCOPE II

# A New Machine Visits Pragma

Just as our staff referred to last month's issue as the "graphics" issue, this month's *Pragma* has been known around the office as the "Bantam" issue. That's because, after months of calling and negotiating with a number of vendors in an attempt to obtain and test one of the newer, low end, microcomputer based Pick systems that are entering the market, we finally contacted Bantam Computers in Los Angeles. To our pleasant surprise, Bantam immediately agreed to supply us with a system so that we could evaluate their hardware and software and report the results in print.

Our experiences with the Bantam have found their way into a number of features and articles in this issue. Not only are some of the articles devoted to Bantam hardware, software and even personnel, but all of the software listings presented are a result of development done on the Bantam machine. Even all of the mailing labels for this issue were printed by the Bantam.

...

The August 1983 issue of *Pragma* featured an article evaluating the Revelation product from Cosmos, a single user Pick-style system for the IBM PC. Recently, Cosmos shipped us the latest version of their documentation and, although we felt the original product was quite satisfactory and easy to use, the new, slicker packaging Cosmos is now using makes the product look even more professional and even more pleasant to use: all of the documentation has been typeset, and is stored in two compact, padded ring binders. No index for their User's Guide and missing write protect tabs on the master floppies were two minor points we complained about in our original article. We noticed both of those problems were fixed in the release they sent us. Late last year, Cosmos reported they had shipped over 1,000 copies of their system.

...

Speaking of IBM releases, Pick Systems has announced a \$495 price tag on a version of their operating system for the IBM XT model, although we do not know exactly when the product is to be in production.

...

Exactly a year ago, this column reported on the first edition of the IDBMA *Application Software Directory*. In November we received a copy of the second edition, dated July 1983. Reports are that a third edition will be at the Reno show. This second version retains the same general format as the first, giving a list of 210 Pick-oriented software packages by name and by 47 classifications, along with a list of 73 vendors and 36 user groups. Since IDBMA itself is no longer a user group, the list of IDBMA members has been dropped in this edition. The cover price is still \$30. The previous edition had only 104 packages by 33 vendors in 36 classifications. Looks like the average of 3 packages per vendor is holding strong.

— The Editors



# **ZEBRA™ RUNS CIRCLES AROUND EVERY COMPUTER IN ITS CLASS.**

Zebra™ is the fastest, most powerful multi-user microcomputer system in its class.

Zebbras are friendly too. Because they utilize the PICK™ Operating System. And with ACCESS™ the system's information management and retrieval language, Zebra speaks English. Just like you do. So everyone from a secretary to top management can use it. Without hours of tedious training. Zebra comes complete with software packages for word processing, graphics and financial spreadsheets.

Zebra also speaks to other computers in your company. It can communicate system to system through its local area network. Or talk with other Zebbras in the field through a simple telephone connection.

Zebbras also support most industry standard communications protocols giving Zebra



the ability to communicate with major mainframes and minicomputers. Zebra also runs the XENIX™ Operating System so it adapts to an infinite variety of commercial, engineering and scientific tasks.

The MC68000® microprocessor gives Zebra the power to handle dozens of tasks simultaneously. Every Zebra has a unique modular design that allows it to grow as your business grows. Your Zebra can

expand from a single user desktop system, to networked and clustered configurations capable of serving hundreds of users.

Zebra follows in the tracks of over 30,000 satisfied users of GA computers worldwide. In the U.S., service for Zebra is available through SORBUS®, the number one rated service organization in the country.

Find out how Zebra can set a faster pace in your company. Call or write now to GA corporate headquarters. GA, 1045 South East St., P.O. Box 4883, Anaheim, CA 92803, (714) 778-4800, Toll-free 1-800-556-1234, Ext. 41. In California, 1-800-441-2345, Ext. 41.

©1983 by General Automation, Inc. Zebra is a trademark of General Automation, Inc. PICK is a trademark of PICK SYSTEMS. ACCESS is a trademark of PICK SYSTEMS. XENIX is a trademark of Microsoft, Inc. MC68000 is a registered trademark of Motorola, Inc. SORBUS is a registered trademark of Management Assistance Inc.

## **ZEBRA BY GA**



Visit us at PICK SPECTRUM '84,  
February 22-24 at the fabulous  
MGM Grand Hotel, Reno, Nevada.  
Call or write for details.



# Bantam Hardware Overview

The available hardware configurations from Bantam Computers are introduced.

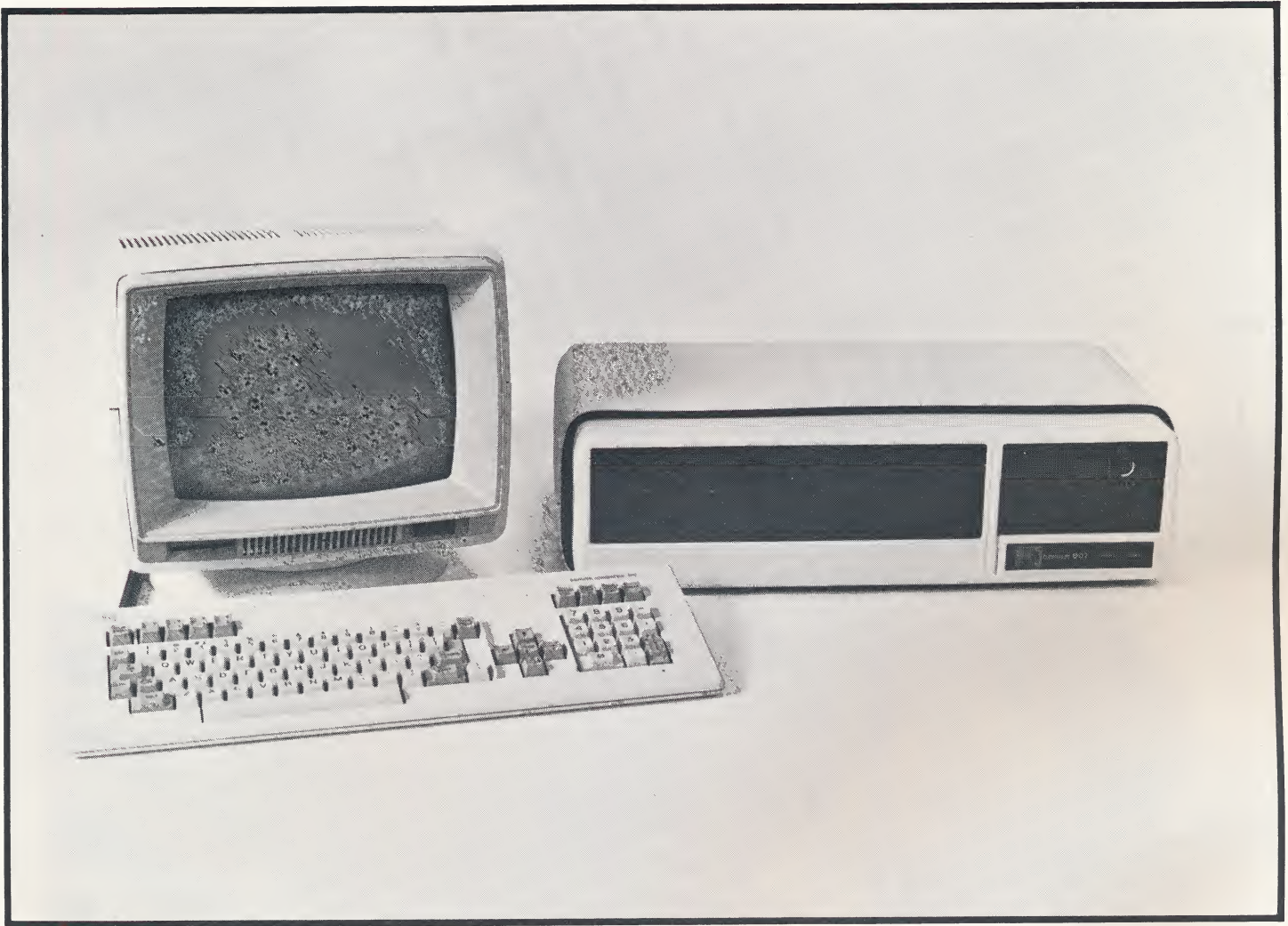
The photo below shows the Bantam 002 desktop model (known as the Bantam 002/7), which is the configuration Bantam made available to *Pragma* for evaluation late last year as reported in various articles elsewhere in this issue. Also available is a larger floor model, the Bantam 002/15.

Both machines begin with a basic 10MHz 68000-based configuration of 128KB of memory and a 20MB  $\frac{1}{4}$ " cartridge tape drive. (The machine that arrived at *Pragma* had the cartridge tape drive housed in a separate cabinet. New machines have the tape drive contained within the CPU housing shown below.) The 002/7 starts with 10MB on a  $\frac{5}{4}$ " Winchester disk and 3 serial ports, while the 002/15 has a 30MB 8" Winchester and 11 ports.

Expansion options allow the 002/7 to reach 1MB of RAM, up to 4  $\frac{5}{4}$ " disks (10, 20 or 40MB each), and up to 12 ports. The 002/15 can expand to 4MB of memory, 32 8" disks (30 or 60MB), 44 ports, and a  $\frac{1}{2}$ " 1600/3200 BPI 83MB tape drive.

The suggested retail price for the 002/7 starting configuration is \$13,695. The 002/15 basic configuration is \$24,995. Available peripherals include the 12" video display shown below for \$585, a printer for \$650, and an uninterruptible backup power supply for \$995.

P





## STILL KEEPING TRACK OF YOUR FIXED ASSETS BY HAND? DO YOU WANT A COMPREHENSIVE SOLUTION?



### WE HAVE THE ANSWER... MULTIDATA'S FIXED ASSET MANAGEMENT SYSTEM!

It's the most comprehensive on-line system available for the controller, tax accountant and property manager. Here are a few of the powerful features of the system:

- Book, federal and multiple state calculations
- Reconciliation of book to tax
- All depreciation methods, including ACRS
- ITC calculations
- Multiple locations (state, county, city, building)
- Incorporates 1983 TEFRA requirements
- Upgrades and enhancements reflect tax law changes
- User-definable formats for data entry allow the system to conform to your business structure
- On-line help messages at every entry point
- Built-in security of data base
- Full support and maintenance program

#### Partial Client List

Multidata Corporation has satisfied clients around the country. For example:

- McDonald's Corporation
- Microdata Corporation
- Nichols Institute
- Galinski & Hamburg & Co.  
Certified Public Accountants
- Mountain Medical Equipment, Inc.
- Mid-Mountain Contractors
- Western Design Corporation

#### Quote from Customer

The system is cost effective, as this quote from one of our customers proves: "We have saved \$30,000 because of Multidata's Fixed Asset Management System."

### THERE IS NO LIMIT TO THE SYSTEM'S GROWTH POTENTIAL -- OR YOURS!

Multidata's Fixed Asset Management System is the most complete, flexible, and easy to use system available today! Referrals, sample documentation and demonstration tapes are available upon request.

**IF YOU WANT TO START SAVING MONEY, CONTACT US TODAY!**



1570 The Alameda, Suite 110 • San Jose, California 95126 • (408) 293-1801



Good programmers will collect a "toolbox" of utility software to use from time to time. If you have a useful utility, send it in for publication. A regular feature in *Pragma* will be this Utilities Department, where good software tools will be spotlighted.

## Suppressing LOCKED Clauses

A utility for suppressing LOCKED clauses in READ statements is presented as an aid for converting DATA/BASIC programs to PICK/BASIC.

The conversion of over 200 DATA/BASIC programs so that they could be compiled with the compiler running on the Bantam computer is mentioned in the *Bantam Diary* in this issue (see the diary entries for December 1st and 2nd). The program on the right is an example of one of the "quick and dirty" utilities mentioned in the diary: it is designed to remove LOCKED clauses in programs to make them PICK/BASIC compatible.

The program is especially interesting for two reasons. First, it doesn't simply delete LOCKED clauses, but instead turns them into comments. This is accomplished by the LOOP from lines 16 to 21, in order to allow the program's original code to be retained for documentation purposes. Leaving the original code as comments inside a program being modified is a useful and desirable technique, even if the modifications are automatically being done by a utility program such as this one.

The second interesting feature of the program is that it makes certain assumptions about the format of the LOCKED clause. The program assumes the LOCKED keyword ends a line, and the statements to be executed when a lock is detected are found on subsequent lines, up until a terminating END ELSE phrase. Program text that is part of the ELSE clause may be on the same line as the ELSE keyword, or on following lines.

The reason that the utility was designed to handle only certain kinds of LOCKED clauses was because it was already known that the vast majority of the programs to be converted were written with LOCKED statements in the particular format described. So first a small checker program was written that simply scanned every program for the word LOCKED and then complained if the word was found but it didn't end a line. The two or three unconforming programs found were then cor-

rected by hand, while all the others were automatically converted with the utility shown here. This approach (for LOCKED clauses and all the other various syntax converting utilities) proved much simpler and faster than trying to write conversion programs to handle every possible case that might be encountered, since it was estimated that the conversion programs would probably only be used once and then discarded forever. P

```

FIX.LOCKED
001 OPEN "BP" ELSE STOP
002 *
003 100 READNEXT ID ELSE STOP
004 READ TEXT FROM ID ELSE STOP
005 ATR = 1
006 LOCKED.FOUND = 0
007 LOOP
008   LINE = TEXT(ATR)
009 UNTIL LINE = "" DO
010   STARTS.RIGHT = (TRIM(LINE)[1,4] = "READ")
011   ENDS.RIGHT = (LINE[LEN(LINE)-5,6] = "LOCKED")
012   IF STARTS.RIGHT AND ENDS.RIGHT THEN
013     LOCKED.FOUND = 1
014     NEXT.LINE = LINE
015     *
016     LOOP
017     TEXT(ATR) = "*" : NEXT.LINE
018     ATR = ATR+1
019     NEXT.LINE = TEXT(ATR)
020     END.POS = INDEX(NEXT.LINE,"END ELSE",1)
021     UNTIL END.POS # 0 DO REPEAT
022       *
023       ELSE.LEN = LEN(NEXT.LINE) - END.POS + 1
024       ELSE.REST = NEXT.LINE[END.POS+4,ELSE.LEN]
025       TEXT(ATR) = LINE[1,LEN(LINE)-6] : ELSE.REST
026       END
027     ATR = ATR+1
028   REPEAT
029   *
030 IF LOCKED.FOUND THEN
031   WRITE TEXT ON ID
032   PRINT "*":
033   END
034 *
035 GO TO 100
036 *
037 END
  
```

P



# Easy, affordable port to port data transfer: **DATA-BRIDGE™**

**No tapes, no hardware, no communication  
control devices needed!**

It's finally happening! PICK,™ the transportable operating system, is now available on a wide range of computers. BUT, how do you transport your data when many computers utilize an incompatible back-up media? With DATA-BRIDGE.

DATA-BRIDGE has been developed to offer a means to transfer data between machines which lack compatible media. DATA-BRIDGE requires no special hardware. It is useful as a conversion aid or simply a method of moving programs or data from machine to machine across the office or across the country.

#### **How does DATA-BRIDGE work?**

Basically, DATA-BRIDGE transfers information from the source machine through the auxillary port of your terminal to the receiving machine. Only one port is required on each computer.

#### **How fast will DATA-BRIDGE transfer data?**

At a 9600 baud rate, DATA-BRIDGE can transfer up to 1.26 megabytes per hour and over 1200 baud phone lines, up to 324,000 bytes per hour may be transferred. (The actual rate may be more or less depending upon the speed of your machines.)

DATA-BRIDGE is a trademark of Interactive Systems. PICK is a trademark of PICK Systems, Irvine, CA.

#### **Is error-checking performed?**

Yes . . . total bytes per item and total items per file are checked. If transmission errors should occur, any item can be easily re-transmitted.

#### **What types of data may be transmitted with DATA-BRIDGE?**

Any dictionary or data file (including programs) can be transferred. Special or control characters are properly handled by DATA-BRIDGE. (File pointers or binary files will not be transmitted.)

#### **New from Interactive Systems DATA-BRIDGE – only \$395**

For more information, fill out the attached form or phone Interactive Systems at (602) 993-3579 today!

**Yes! Please send me more  
information about DATA-BRIDGE.**

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

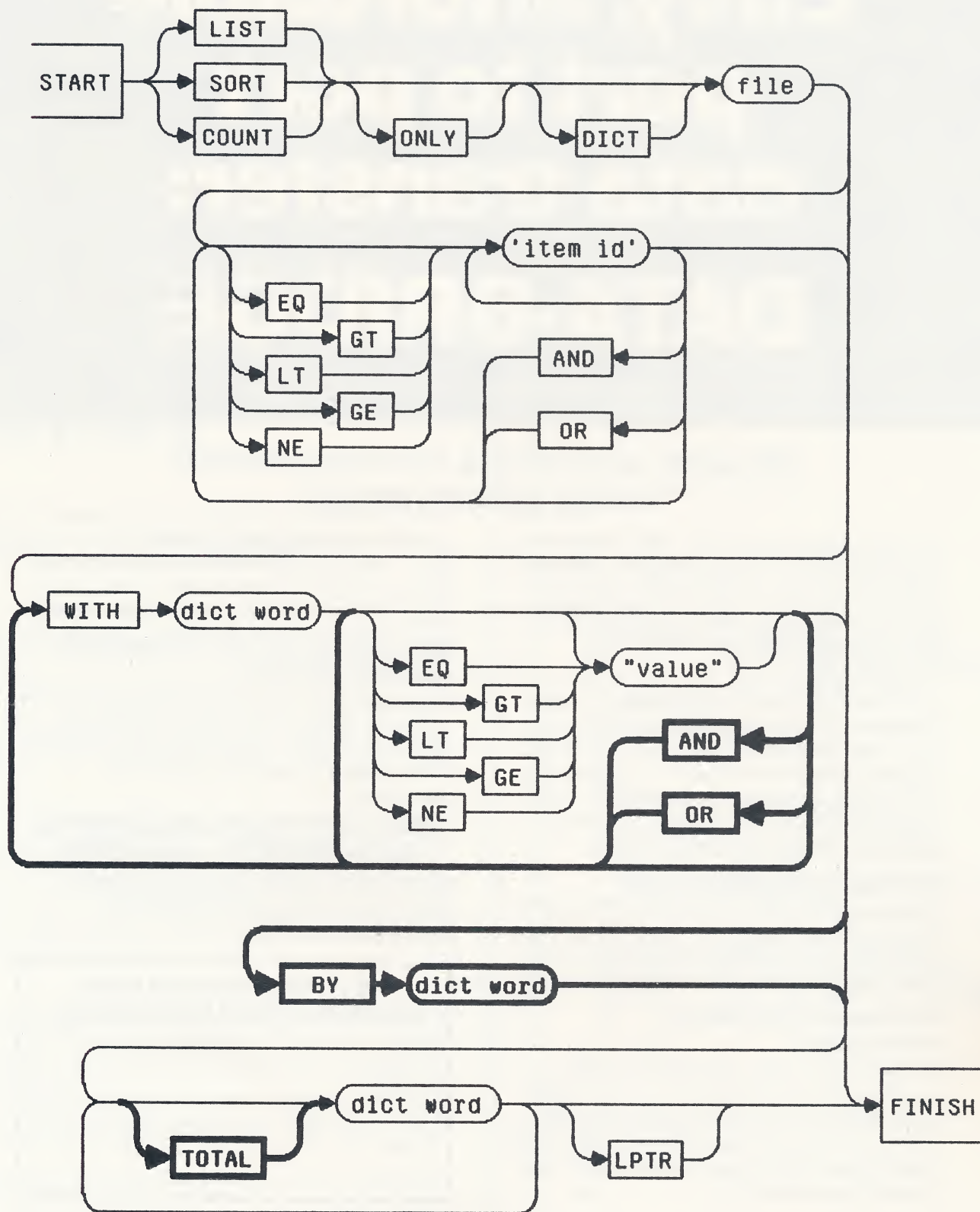
Phone ( ) \_\_\_\_\_



**INTERACTIVE SYSTEMS**

2432 West Peoria Avenue, Suite 1282-B  
Phoenix, Arizona 85029







# An Introduction to ENGLISH<sup>®</sup> Part 6: WITH, BY and TOTAL

The sixth in a series of articles is presented for the beginning user of the inquiry and report generation language called ENGLISH. The syntax chart introduced in the last installment is expanded to include additional features for selecting and listing data.


Part 4 of this series introduced *relational operators* such as EQ for "equal" and LT for "less than". By using such operators in conjunction with item identifiers in single quotes, we learned that commands can be used to retrieve and list only certain items in a file. For example, LIST PO LT '200' might be used to only list those purchase orders numbered less than 200.

The syntax chart presented in the last installment revealed that relational operators can also be used to test any attribute,

not just the item identifier, by using the word WITH in conjunction with a dictionary word. This is handy when the attribute we want to test is something other than the item identifier. For example, our purchase order file (where each item is filed under a purchase order number) might be searched for a given customer with a command such as LIST PO WITH CUSTOMER "IBM CORP".

The chart on the opposite page is an expanded version of the chart presented in the last issue. New capabilities are shown in bold lines. For example, the chart now shows that the words AND and OR can be used in WITH clauses. This is useful for when more than one condition must be tested. For example, LIST PO WITH OPEN.BAL AND WITH DUE.DATE GT "10/1" might be used to list only orders with an open balance and with a due date after October 1st, while LIST PO WITH REC.QTY OR WITH PAID might be used to list only orders with some quantity received or some amount paid. What happens in the last example if the word OR is left out?

Another new feature shown on the chart is the ability to sort a report by any attribute. This is accomplished by prefacing a dictionary word with BY when using the SORT verb. For example, SORT CUSTOMERS BY ZIP. Note that the BY clause only specifies in what order to sort. It doesn't specify what columns of data to output after the sorting is done.

The last new feature is the TOTAL modifier. Try some commands with and without TOTAL to see what it does. (Hint: check the last line of your report.) For best results, use TOTAL before a dictionary word that causes a column of numeric (as opposed to alphabetic) data to be output. 

## COMPU-SHEET<sup>™</sup> The electronic spreadsheet for your PICK<sup>™</sup> System.

COMPU-SHEET was specifically designed to combine the electronic spreadsheet concept with your PICK database. Bantam Computers, CDI, Datamedia and General Automation, plus hundreds of end users worldwide have chosen COMPU-SHEET as the best electronic spreadsheet for their PICK-based computer systems. Find out why. For information and a complete brochure, call Interactive Systems at (602) 993-3579, or mail the attached form today.



### INTERACTIVE SYSTEMS

2432 West Peoria Avenue, Suite 1282-B  
Phoenix, Arizona 85029 • (602) 993-3579

**Yes! Please send me  
more information about  
COMPU-SHEET.**

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_  
Telephone (     ) \_\_\_\_\_

***For Microdata, all PICK Systems and the Prime Information System.***

COMPU-SHEET is a trademark of Interactive Systems. PICK and PICK Systems are trademarks of PICK Systems, Irvine, CA.



# producer profile

Regardless of the size of a company that is selling some product, often only one or two employees at the company will control the engineering and marketing of the item being sold. In this regular department, Pragma will be interviewing those personnel intimately involved with the creation of popular and well known products in order to reveal the who, what, when, where, why and how of organizations currently offering goods and services to Pragma readers.

**One of the newest names on the Pick scene is Bantam Computers, a company based in Los Angeles. For this issue's profile, Pragma interviewed Gerald P. Troy, Bantam's vice president of sales.**

**Pragma:** Your company doesn't actually manufacture hardware, does it?

**Troy:** The Bantam computer is produced to our specifications by Pertec Computer Corporation. We've contracted with Lear Siegler to produce a modified version of the ADM 11, which is the video display of choice for us. We've also selected a couple of printers that we'll be selling with the system. We're basically integrating components from hardware manufacturers, using the Pertec machine as a base for our product.

**Pragma:** How did Bantam get started?

**Troy:** It was about a year and a half ago that Mario Montana and Rand Tuttle, the original two principals of the company, happened to get involved with the Pick operating system. The corporation was formed in March of 1983. There had been a lot of groundwork laid before that. We were originally the people who were going to put Pick up on the Fortune machine. As those negotiations started proceeding, it became apparent to us that there was no high end, there was no expansion of the machine. It was at that time a single user machine, and it had only Unix, and they were having trouble making a multi-user system. Concurrently with that, Pertec contacted us. The Pertec equipment looked better, and as a company they looked better, because Pertec has a very good history of building reliable gear. And their policy is that basically they don't want to sell the stuff themselves either. They certainly don't want to sell to end users. We were able to negotiate a good agreement. We opened the doors here June 1st, and we announced the product August 8th. Six months before we opened the doors here, we had space, and still do, at Pertec's plant. It wasn't something that Pertec did and we jumped in and we're buying the machines from them. We were heavily involved with them in specifying how the machine would look, what went into it, and how the Pick operating system was ported to it. I think that, as a result of that combined effort with Pick and us and Pertec, this implementation is the cleanest of the 68000 implementations.

**Pragma:** Did Pertec already have prototype hardware when you got involved with them?

**Troy:** The 68000 product itself, not the desktop but the floor model, had been being manufactured and sold as an integral part of a 3M microfilm retrieval system for about a year before

that. The boards in the desktop and floor model are exactly the same, with the exception of the Winchester controller because they are two different sized Winchesters, so the actual electronics and the boards had already been in a production system before the versions that are here now were built. So it was a proven system even before they built it into a separate desktop cabinet.

**Pragma:** What is Bantam's current size and organization?

**Troy:** At the present time, we have about 30 employees. We have opened three geographic regions, one being here in Los Angeles, one in Chicago, and one for New York which is located in Paramus, New Jersey. We've also opened a federal government region and have an office in Washington, DC. Each one of the remote offices are presently staffed by a regional manager and a regional support manager. We intend to expand all the regions from a sales and marketing standpoint quite dramatically at the end of the first quarter of this year.

**Pragma:** How is Bantam different from other Pick-oriented vendors?

**Troy:** I think that the key element about the company is the backgrounds of the people involved and the kind of people we're hiring. The bulk of the people that are in this company come from large mainframe, mostly IBM, backgrounds. We feel that we're applying, both from a hardware and a software standpoint, the basic business principles that the Fortune 1000 corporations will find interesting. Most of the microcomputer companies that are in existence today evolved either upward from being a terminal company or downward from being a minicomputer company. We're applying the principles and the skills that we've developed from being in the large-scale end user market. We're not selling systems one or two at a time, we're selling them maybe 100 or 200 at a time as a single system solution to a large business's problem.

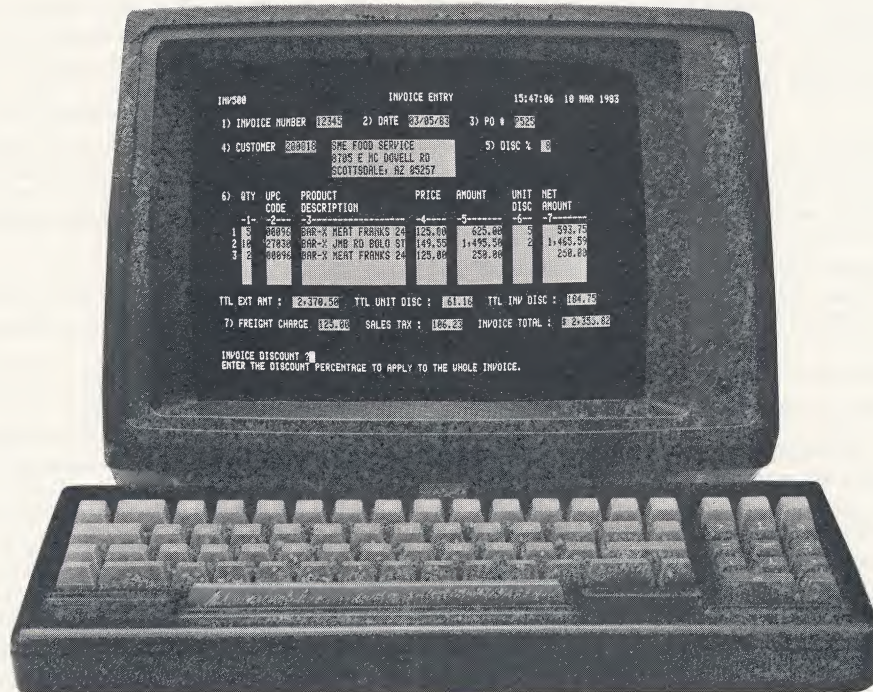
**Pragma:** Can you give specific information about some of your current prospects?

**Troy:** At the present time we have two very large prospects. One of them is for about 230 systems, and they are a Fortune 100 company. It's a retail point-of-sale, inventory control system. What this company is doing is distributing the processing to the individual retail location, as opposed to having it online to a large IBM host. These machines will be effectively online within each store and offline from the corporate data center. Every night the data center (consisting of three or four Bantam floor models) will call up the remote desktops. We will gather up all the data from each store and put it into a file and pass it on to the IBM mainframe. We'll also be sending data to each store, such as price updates and electronic mail messages and things of that nature. We are using the newly announced Bantam protocol for this prospect, with full error checking and recovery. We developed this with another company, and it's more than adequate. Asynchronous communications has had



FROM INTERACTIVE SYSTEMS

# SCREEN-GEN



## What is SCREEN-GEN?

SCREEN-GEN is a data entry or data inquiry processor that can be used to develop program applications such as: order entry, journal entry, inventory adjustment, customer inquiry, or any other screen-related process.

SCREEN-GEN has a language processor similar to ENGLISH or ACCESS that works with your data dictionaries in defining a screen program, its format, prompt and function fields, and the file update logic. Once generated, these programs can be run interpretively by the system, simply by keying in the program name.

SCREEN-GEN optionally allows you to generate a screen program into BASIC code. SCREEN-GEN generates comprehensive documentation on each program defined. It also includes a full screen editor for maintaining screen program definitions once they are created, and has a dictionary

editor for maintaining your data dictionaries.

SCREEN-GEN is easy to use, yet is comprehensive in its approach to solving data processing problems. Utilizing multi-valued data structures is no problem with SCREEN-GEN. You can define any number of windows in your screens that scroll forward or backward independently and allow full control of your multi-valued data.

With SCREEN-GEN, you can define programs that extend to multiple screens for data entry and update any number of files within your database. For customized processing, you can even include BASIC code statements and routines directly into your screen definitions that will allow you to accomplish in SCREEN-GEN what you might have achieved in a user-written program.

SCREEN-GEN is written entirely in BASIC; there are no assembly

language routines used and source

code is supplied to each user. You no longer need to be dependent on anyone else for the maintenance of your system. SCREEN-GEN is available for all PICK-compatible systems. **To learn more about SCREEN-GEN, call (602) 993-3579 or mail the form below to:**



**INTERACTIVE SYSTEMS**  
2432 West Peoria Avenue  
Suite 1282-B  
Phoenix, Arizona 85029

### I'm interested in learning more about SCREEN-GEN.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_ Zip \_\_\_\_\_  
Phone ( ) \_\_\_\_\_

SCREEN-GEN is a trademark of Interactive Systems. ENGLISH is a trademark of Microdata Corporation, Irvine, CA. ACCESS, PICK and PICK Systems are trademarks of PICK Systems, Irvine, CA.

**SCREEN-GEN is to data entry what ENGLISH is to report generation.**



a resurgence of sorts in the past few months due to the micro, and the modem manufacturers are now manufacturing modems that can handle async at much higher speeds than was previously thought to be done, with full error checking. We're taking advantage of all those things, and the customer is more than satisfied with the protocol. The other large prospect is a health care company that is going to be distributing systems to about 200 health care facilities. A similar environment, and it will be async too.

**Pragma:** What is Bantam's evaluation of the Pick marketplace, and how Bantam fits in?

**Troy:** I think prior to our entry into the market, most Pick systems have been sold through distributors and/or dealers, and have been sold one at a time. Our approach to the marketplace is a little different. We really think that there is a huge market in the Fortune 1000 companies, and it comes down to making the people in those institutions aware of Pick. We've got an education process ahead of us and we recognize that. We are also going to market our equipment through independent sales organizations (ISO's). We've signed a number of them already. Most of our ISO's will be vertical market oriented, as opposed to straight dealers who are using other people's software. We intend to take that vertical market software from our ISO base, as time goes on, and use that in the Fortune 1000 base. In fact, in the retail point-of-sale, inventory control system — for the prospect that I mentioned — we're using software that previous to this was only installed in five locations and they were all small businesses. In fact, the 230 locations of this prospect are each nothing more than a small business but, if you look at all of them, it's a huge company. At first they were reticent to even talk about using a piece of software that was only operating in a small business, and was basically owned and installed by a small company, but after they saw the software and saw the functionality of the Pick system, those fears went away. They were actually in a state of shock, because we were up against some very large vendors in this thing — the Data Generals and the DEC's and those kinds of people — and they were dealing with software that had been installed many more times, but there was no comparison when they got right down to looking at the functionality and the speed of our machine. It's just an education process. I think that the Pick world has been afraid to go out and attack the Fortune 1000 market before now, and that's our whole background and business base, and we're going to go after it.

**Pragma:** Can you give us some of your actual sales goals?

**Troy:** I would say that our goals are to install 1,200 to 1,500 machines in 1984, and to have a backlog of maybe 3,000 machines by then.

**Pragma:** What kind of machine population do you have right now?

**Troy:** There're about 30 machines out there somewhere, being evaluated by ISO's and at end user sites. We have gotten the machines into a test environment and they become the ISO's demo machine and then he starts selling machines.

**Pragma:** Is a typical existing Pick user going to be able to find you and buy a machine?

**Troy:** After the first of the year we're going to start a very aggressive advertising campaign. It will be targeted to the Pick user base. And those leads that come from the existing Pick user base that are small users, we'll turn over to our ISO's for them to market. From a large business standpoint, we're going to gear advertising to the more well known business publications and to vertical market publications like the insurance industry or the banking industry. We are going to do

an awful lot of advertising this year.

**Pragma:** Why do you have an office just for federal government sales?

**Troy:** The most important reason is that there are very little, almost no, Pick systems in federal government installations to this date, based on a study we did. The federal government is a user-oriented type community. Ease of use, simplicity of use are very important. Unix has become very big in the federal government because, de facto, it was the only system that was available to them. We just delivered our Schedule C response on December 16. We expect to get a very favorable negotiation and will probably become a preferred vendor to the federal government. Schedule C is the new GSA procurement schedule that relates specifically to small procurements of microcomputers. Once you're on the GSA schedule, your price list is there, you can print up copies of your final negotiation with the government, and you can deliver those copies to every agency. Once you're approved by GSA, the other federal government agencies have a tendency of doing business with you. We've done a lot of ground work in dealing with the GSA and many of the agencies, and we think that there is an absolutely gigantic market in the federal government.

**Pragma:** How, if at all, have your sales efforts' results been different than you expected?

**Troy:** The interest level of the existing Pick ISO's has been higher than we expected. We thought we were enough behind the established Pick suppliers that we really wouldn't get a complete and fair evaluation because they'd made their decision already. We've found that's not the case. Even the ones who have made decisions are more than interested in looking at our equipment and looking at what we have to offer, and I think that a great part of that is brought about by our proprietary software that we're offering with the system. All in all, we feel extremely good about what's happened during the first six months. Our expectations were exceeded.

**Pragma:** Who is your toughest competition and why?

**Troy:** It depends on which market you're looking at. In the end user market, I don't think we totally know yet who our competition is going to be. In the end user marketplace, 98% of our competition is non-Pick systems. We enjoy an advantage there in that most of our prospects are end user oriented, and with the Pick system we've got something different. It doesn't make us just another vendor that is selling just another piece of hardware with the same operating system on it. They do have a tendency to want to look at it. Once they see it, their whole attitude changes about the system itself. In the ISO marketplace, I think that the competition is who you would expect. It's going to be General Automation, ADDS.

**Pragma:** Everyone seems to be announcing a small, fast, cheap Pick 68000 implementation. How is that affecting you?

**Troy:** Obviously it makes the selling cycle probably extend out a little bit longer. In the final analysis, given the fact that somebody has got a 68000, what it comes down to is the people and the software they have available. I think that our Bantam SHELL is an extraordinary and unique product right now. We've got it now, it's an advantage to have it now. I think that the people we have and the support we are going to provide and our approach to the business are going to make us stand out.

**Pragma:** What's the profile of your typical customer going to be?

**Troy:** The typical end user customer will be somebody who buys 25 machines or more. Anything that our people contact or even looks like it's less than 25 machines, they have to turn



over to one of our ISO's. That's in the arrangement that we're making with our ISO's. We're not going to deal with 25 machines or less.

**Pragma:** Do you think your price and performance look especially attractive?

**Troy:** The end user market crosses operating system lines, and gets us into competing with people with other operating systems. It gets us into competing mainly with Wang with their VS, and Data General. When we look at the price of our system versus the price of their system and what they have available, we have significantly greater capabilities in terms of the number of users that we can hang on a machine at the \$15,000 to \$16,000 price level. When we look at the other machines like the Data General and the Wang, those machines are significantly more expensive at a given capability level than our machine is. And we did a stress test on our device, with eight to ten terminals and a couple of printers hooked up to it, running compiles concurrently, and the machine held up extremely well.

**Pragma:** If I'm an end user and I want to know what software will run on your machine, what can you tell me?

**Troy:** We have the beginnings of a very, very comprehensive applications software directory. The directory is going to contain all of the Pick software that we are even aware of, including anybody who wants a listing in the directory. And, within that directory, we're going to classify the software into level one, level two and level three. Level one will be software that is offered by us, priced by us and somewhat documented by us. That will be just a few systems, probably Accu-Plot, Compu-Sheet, an application generator or two, and a full accounting system, maybe manufacturing, distribution. Most of the software that we're going to promote will be level two, and level two is software that we're going to document with a three or four page writeup, and it's going to be mostly user application oriented, and it's going to be software that we have on our system here, that our people are familiar with, and it's stuff that we can recommend to either end users or ISO's. Then level three will be every piece of software that's available that's running under Pick.

**Pragma:** How will your directory compare with what IDBMA puts out?

**Troy:** It's going to be larger, it's going to have more systems, it's going to be significantly more complete in terms of descriptions of those systems, particularly in level two which is the software that we're going to recommend. We will have had the software installed here, we will have familiarized ourselves with it and be able to discuss it somewhat intelligently. We'll bring the author or the company that is responsible for the software into those end user and other dealer situations where we actually want to use the software.

**Pragma:** What software packages are up and running on your system now?

**Troy:** We've got a couple of Multidata systems, their fixed asset system which is a popular system and their insurance agency system. We've got Accu-Plot, Compu-Sheet up and running. We've got Wizard, we have Screengen and System Builder, which are all application generators and all three work best in different environments. We find that one application generator doesn't work for every customer. It's not a matter of which has more or less features, it's a matter of their approach of building that application. We were going to promote one of them and we found we couldn't do that, we were going to have to go with all three of them. There's a fund raising system. There's a retail point-of-sale system. I don't know what else we've got up and running. Fred Gottlieb, the

manager of what we call ISO support, is responsible for applications software. His main job is to locate, evaluate and categorize every piece of applications software he can find. He just started December 1st. We're evaluating general ledger accounting systems right now.

**Pragma:** What arrangements do you have with Pick systems?

**Troy:** We have the source code. Pertec is the licensee. We're co-named in the license agreement. We work with Pick systems. We had a lot to do with the recent improvements made to Jet. We have a very close working relationship with Pick because we were going to become an individual licensee when we were going to put it up on Fortune, so we've been dealing with Pick for over a year and a half now. And it's a very good relationship.

**Pragma:** If you have a copy of the source code, does that mean your system might grow to become incompatible with Pick?

**Troy:** Our position right now is that we're not going to do anything that would make us incompatible with any improvements or enhancements that they may make to the system. We would not negate our ability to apply any of those changes, and have the system run.

**Pragma:** What's hardest about selling your product?

**Troy:** The hardest thing about selling the product right now is that, because we're in startup, no one has heard of us. Getting people over the hump that there is another system out there other than Unix. It's amazing to me that for a system with the number of installations this one has, so few people have knowledge of it. And that's strictly from the fact that the system hasn't been promoted properly.

**Pragma:** How should Pick be promoted?

**Troy:** Do what we're doing. Get it out into the hands of the large end user community, start to run ads in the prominent business and industry publications. I've got the Computer-world software directory for operating systems. Pick is not there. It's not listed as an operating system in Datasources. There are applications listed that run under Pick, but in the separate listing under database management systems or operating systems, Pick isn't listed. There's a lot of history to that. Pick wasn't doing any professional promotion and didn't have professional managers up until about the past year and a half, and it takes time to get a system promoted properly.

**Pragma:** How is your service and support handled?

**Troy:** Hardware maintenance is RCA. The software support will be done directly by a hotline to here, which is being installed. Operating system support and SHELL support will be done by the hotline or by the regional support manager.

**Pragma:** What can you tell us about your future product plans?

**Troy:** I wouldn't be surprised to see a couple of new models in our product line by the middle of this year. One might be a little lower end, maybe not have the cartridge tape. One would be a little bit bigger desktop. These plans aren't cast in concrete, that's why I'm being a little vague. I think we might see a larger desktop with more slots available for those people who want to expand the desktop beyond twelve users.

**Pragma:** What are Bantam's growth objectives?

**Troy:** To be doing over \$100,000,000 a year in three years.

**Pragma:** Is going public part of the game plan?

**Troy:** Absolutely. Our intentions are to go public somewhere around the third year.

P



# VANILLA (The No-Frills Manufacturing System) Part 7: Disposition

**This seventh installment in a series on the design and implementation of a manufacturing system presents the program for disposing MRB tickets created as a result of using the INSPECT program.**

The previous article in this series [*Pragma* #6, page 34] presented the INSPECT program for examining purchase

order receipts. The DISPOSE program shown beginning on the opposite page is the next step in purchase order processing, in that DISPOSE is designed to allow the proper disposition of previously rejected material review board (MRB) parts.

The file format shown below includes descriptions of all attributes in the new DIS file that DISPOSE maintains. Also given is a typical Vanilla screen definition, although DISPOSE (which was written and tested on a Bantam computer) happens to use CALLs to the GET routine introduced in the previous *Pragma* and further documented in this issue, instead of INPUT USING statements. GET was used primarily to demonstrate that any Vanilla program could easily avoid INPUT USING, while still relying on the usual screen definition items.

Note that DISPOSE assumes a part number is stored in attribute five of MRB items. This can be avoided by modifying DISPOSE to use the purchase order information found in attributes two and three and retrieving the part number directly from the purchase order, or INSPECT can be modified to save part numbers in MRB items to avoid changing DISPOSE. Also note that the on hand quantity in IM items should only be affected if parts were purchased for inventory. Checking the purchase order for a valid inventory account (see *Vanilla Part 5* regarding account "1234-56") is left as an exercise for the reader.

File. Attribute. AMC \* Description.....

DIS		Dispositioned MRB.		
DIS	TICKET	0	Ticket number from MRB.	
DIS	PO	1 A	Purchase order number.	
DIS	PART	2 A	Part number.	FILE FORMAT
DIS	REJ	3 A	Quantity rejected.	
DIS	ASIS	4 A	Use as is quantity.	
DIS	RWI	5 A	Rework inside quantity.	
DIS	WO	6 A	Work order number if there is any RWI quantity.	
DIS	WO.ACCT	7 A	Account charged if there is any RWI quantity.	
DIS	RWO	8 A	Rework outside quantity.	
DIS	RWO.PO	9 A	Purchase order number if there is any RWO quantity.	
DIS	PO.ACCT	10 A	Account charged if there is any RWO quantity.	
DIS	MEMO	11 A	Shipping memo if there is any RWO quantity.	
DIS	RTV	12 A	Return to vendor quantity.	
DIS	RMA	13 A	RMA number if there is any RTV quantity.	
DIS	SMEMO	14 A	Ship memo if there is any RTV quantity.	
DIS	SCRAP	15 A	Scrap quantity.	
DIS	XFER	16 A	Transfer number if there is any scrap.	
DIS	XACCT	17 A	Transfer account if there is any scrap.	
DIS	ID	18 A	Inspector id.	

## FILE FORMAT

[illegible]

## SCREEN DEFINITION



## DISPOSE PROGRAM LISTING

```

DISPOSE
001 EQU DIS$PO TO 1
002 EQU DIS$PART TO 2
003 EQU DIS$REJ TO 3
004 EQU DIS$ASIS TO 4
005 EQU DIS$RWI TO 5
006 EQU DIS$RWO TO 8
007 EQU DIS$RTV TO 12
008 EQU DIS$SCRAP TO 15
009 *
010 EQU IM$ON.HAND TO 1
011 EQU IM$MRB TO 3
012 *
013 EQU MRB$PO TO 2
014 EQU MRB$ITEM TO 3
015 EQU MRB$QTY TO 4
016 EQU MRB$PART TO 5
017 *
018 EQU PO$ITEM TO 7
019 EQU PO$DATE.IN TO 10
020 EQU PO$SCHED TO 11
021 EQU PO$QTY TO 12
022 EQU PO$BALANCE TO 13
023 EQU PO$QTY.IN TO 20
024 EQU PO$QTY.RTV TO 22
025 *
026 EQU shopo TO 2
027 EQU shorma TO 3
028 EQU shopart TO 4
029 EQU shoqty TO 5
030 EQU asis TO 6
031 EQU rwkin TO 7
032 EQU rwo TO 8
033 EQU rwkout TO 10
034 EQU rpo TO 11
035 EQU rtv TO 14
036 EQU rma TO 15
037 EQU scrap TO 17
038 EQU xfer TO 18
039 EQU id TO 20
040 EQU ok TO 21
041 *
042 OPEN "MRB" TO MRB.FILE ELSE STOP "VAN1"
043 OPEN "DIS" TO DIS.FILE ELSE STOP "VAN2"
044 OPEN "IM" TO IM.FILE ELSE STOP "VAN3"
045 OPEN "PO" TO PO.FILE ELSE STOP "VAN4"
046 OPEN "DF" TO DF.FILE ELSE STOP "VAN5"
047 READ SCREEN FROM DF.FILE, "DISPOSE" ELSE STOP "VAN6"
048 *
049 AT.ERR = @(<0,23>):@(<-4>)
050 *
051 100 *
052 RELEASE
053 PRINT CHAR(12):@(<59>):TIMEDATE():
054 *
055 200 *
056 DIS = ""
057 CALL GET(DIS.ID,SCREEN,"",1,IGNORE,EXIT)
058 IF EXIT THEN STOP
059 DIS.ID = DIS.ID<1>
060 *
061 READU MRB FROM MRB.FILE, DIS.ID ELSE
062   RELEASE MRB.FILE, DIS.ID
063   PRINT AT.ERR:"Ticket not found!":
064   GO TO 200
065 END
066 *
067 READU IGNORE FROM DIS.FILE, DIS.ID THEN
068   RELEASE DIS.FILE, DIS.ID

```



```

069 PRINT AT.ERR:"Ticket ":DIS.ID:" already disposed!":
070 GO TO 200
071 END
072 *
073 PO.ID = MRB(MRB$PO)
074 CALL GET(IGNORE,SCREEN,PO.ID,shopo,IGNORE,IGNORE)
075 *
076 DIS(DIS$PO) = PO.ID
077 PART = MRB(MRB$PART)
078 DIS(DIS$PART) = PART
079 CALL GET(IGNORE,SCREEN,PART,shopart,IGNORE,IGNORE)
080 *
081 REJECT = MRB(MRB$QTY)
082 DIS(DIS$REJ) = REJECT
083 CALL GET(IGNORE,SCREEN,REJECT,shopqty,IGNORE,IGNORE)
084 *
085 AS.IS = 0
086 RWK.IN = 0
087 RWK.OUT = 0
088 RTV = 0
089 *
090 LOOP
091 CALL GET(DIS,SCREEN,DIS,asis,IGNORE,EXIT)
092 IF EXIT THEN GO TO 100
093 AS.IS = DIS(DIS$ASIS)
094 WHILE (AS.IS < 0) OR (AS.IS > REJECT) DO REPEAT
095 IF AS.IS = REJECT THEN GO TO 300
096 *
097 LOOP
098 CALL GET(DIS,SCREEN,DIS,rwkin,IGNORE,EXIT)
099 IF EXIT THEN GO TO 100
100 RWK.IN = DIS(DIS$RWI)
101 WHILE (RWK.IN < 0) OR ((AS.IS+RWK.IN) > REJECT) DO REPEAT
102 IF RWK.IN # 0 THEN
103 CALL GET(DIS,SCREEN,DIS,rwo,IGNORE,EXIT)
104 IF EXIT THEN GO TO 100
105 IF (RWK.IN+AS.IS) = REJECT THEN GO TO 300
106 END
107 *
108 LOOP
109 CALL GET(DIS,SCREEN,DIS,rwkout,IGNORE,EXIT)
110 IF EXIT THEN GO TO 100
111 RWK.OUT = DIS(DIS$RWO)
112 WHILE (RWK.OUT < 0) OR ((AS.IS+RWK.IN+RWK.OUT) > REJECT) DO REPEAT
113 IF RWK.OUT # 0 THEN
114 CALL GET(DIS,SCREEN,DIS,rpo,IGNORE,EXIT)
115 IF EXIT THEN GO TO 100
116 IF (RWK.OUT+RWK.IN+AS.IS) = REJECT THEN GO TO 300
117 END
118 *
119 LOOP
120 LOOP
121 CALL GET(DIS,SCREEN,DIS,rtv,IGNORE,EXIT)
122 IF EXIT THEN GO TO 100
123 RTV = DIS(DIS$RTV)
124 WHILE (RTV < 0) OR ((AS.IS+RWK.IN+RWK.OUT+RTV) > REJECT) DO REPEAT
125 IF RTV # 0 THEN
126 CALL GET(DIS,SCREEN,DIS,rma,IGNORE,EXIT)
127 IF EXIT THEN GO TO 100
128 IF (RTV+RWK.OUT+RWK.IN+AS.IS) = REJECT THEN GO TO 300
129 END
130 SCRAP = REJECT - (RTV+RWK.OUT+RWK.IN+AS.IS) ;* Compute scrap
131 DIS(DIS$SCRAP) = SCRAP
132 CALL GET(IGNORE,SCREEN,SCRAP,scrap,IGNORE,IGNORE)
133 WHILE SCRAP < 0 DO REPEAT
134 IF SCRAP = 0 THEN GO TO 300
135 CALL GET(DIS,SCREEN,DIS,xfer,IGNORE,EXIT)
136 IF EXIT THEN GO TO 100
137 *

```

LISTING  
CONTINUED



# LISTING CONTINUED

```

138 300 CALL GET(DIS,SCREEN,DIS,id,IGNORE,EXIT)
139 IF EXIT THEN GO TO 100
140 *
141 400 * File or exit
142 BREAK ON
143 CALL GET(IGNORE,SCREEN,"",ok,IGNORE,EXIT)
144 IF EXIT THEN GO TO 100
145 BREAK OFF
146 *
147 READU IM FROM IM.FILE, PART ELSE IM = ""
148 IF RTV > 0 THEN
149   READU PO FROM PO.FILE, PO.ID ELSE
150     RELEASE PO.FILE, PO.ID
151     PRINT AT.ERR:"PO not found!":
152     RELEASE IM.FILE, PART
153     GO TO 400
154   END
155   ITEM = MRB(MRB$ITEM)
156   IF PO(PO$ITEM,ITEM) # ITEM THEN
157     PRINT AT.ERR:"Item not found!":
158     RELEASE PO.FILE, PO.ID
159     RELEASE IM.FILE, PART
160     GO TO 400
161   END
162   TOTAL.QTY = 0
163 *
164   I = 1
165   LOOP UNTIL PO(PO$SCHED,ITEM,I) = "" DO
166     TOTAL.QTY = TOTAL.QTY + PO(PO$QTY,ITEM,I)
167     I = I+1
168   REPEAT
169   TOT.DLV = I-1
170   QTY.IN = 0
171   I = 1
172   LOOP
173     NEXT.DATE = PO(PO$DATE.IN,ITEM,I)
174   UNTIL NEXT.DATE = "" DO
175     QTY.IN = QTY.IN + PO(PO$QTY.IN,ITEM,I)
176     I = I+1
177   REPEAT
178   OVERSHIP = QTY.IN - TOTAL.QTY - PO(PO$QTY.RTV,ITEM)
179   IF OVERSHIP < 0 THEN OVERSHIP = 0
180   DELTA = RTV - OVERSHIP
181   IF DELTA > 0 THEN
182     I = TOT.DLV
183     LOOP UNTIL (I = 0) OR (DELTA = 0) DO
184       OLD = PO(PO$BALANCE,ITEM,I)
185       PO(PO$BALANCE,ITEM,I) = PO(PO$BALANCE,ITEM,I) + DELTA
186       IF PO(PO$BALANCE,ITEM,I) > PO(PO$QTY,ITEM,I) THEN
187         DELTA = PO(PO$BALANCE,ITEM,I) - PO(PO$QTY,ITEM,I)
188         PO(PO$BALANCE,ITEM,I) = PO(PO$QTY,ITEM,I)
189       END ELSE DELTA = 0
190     I = I-1
191   REPEAT
192     PO(PO$QTY.RTV,ITEM) = PO(PO$QTY.RTV,ITEM) + RTV
193   WRITE PO ON PO.FILE, PO.ID
194   END ELSE RELEASE PO.FILE, PO.ID
195   END
196   IM(IM$MRB) = IM(IM$MRB) - REJECT
197   IM(IM$ON.HAND) = IM(IM$ON.HAND) + AS.IS + RWK.IN + RWK.OUT
198   WRITE IM ON IM.FILE, PART
199   WRITE DIS ON DIS.FILE, DIS.ID
200   DELETE MRB.FILE, DIS.ID
201 *
202 BREAK ON
203 GO 100
204 *
205 END

```



# A Bantam Diary

**An evaluation of the Pertec hardware and the Pick software that forms the foundation of the Bantam computer line.**

*Editor's note: Bantam arranged for one of their computer systems to be loaned to Pragma, knowing that we would be experimenting with the product and organizing our findings into various articles for inclusion in this issue. This particular article is the diary recorded by our staff late last year as they began testing and working with the product. The goal of the various efforts described in this diary was to determine just how well the Bantam system would perform as a "standard" R80-style Pick machine.*

**October 5th:** We telephoned Gerald Troy, Bantam's vice president of sales. After a brief discussion, Gerry decides Bantam is definitely interested in having *Pragma* write about their product. He'll ship us a machine for our evaluation. We'll send a letter confirming the details of our agreement.

**October 24th:** So far, we've heard nothing from Bantam. We make another call to Los Angeles, and Gerry promises a machine will be shipped to us the next day.

**October 27th:** Two not particularly big boxes totaling 86 pounds arrive by truck. The freight is only \$17.49 and has been prepaid. It's the Bantam. The two boxes have been shipped from Pertec in Irvine and have Pertec artwork on the outside, but they also have large labels that say "manufactured expressly for Bantam Computers, Inc."

We open the first box and find a cartridge tape drive, serial number 134. There is also a long, wide, flat ribbon cable, a power cord, and a few pages of engineering drawings that include a picture showing how the ribbon cable should be installed into a computer.

The other box contains a Bantam 002 computer, serial number 51. It is a desktop unit housing a 5¼" floppy and a 20 megabyte 5¼" Winchester disk, all in an enclosure not much bigger than the separate tape drive.

The design of both enclosures includes a distinctive "wrap" around the middle, made of some type of molded plastic on the tape drive, but of flexible vinyl-like material on the computer.

Two yard-long ribbon cables emerge from the back of the desktop unit, terminating in small square junction boxes with four EIA connectors on each box. Wrapped in a plastic bag with each junction box are two metal straps, apparently to facilitate mounting the junction boxes on a wall. Three more EIA connectors are on the back of the cabinet itself, so this unit accepts up to eleven RS232 devices. The bottom of the shipping carton offers up one more power cable, a few more pages of engineering drawings, a configuration sheet that includes a card apparently recording five bad disk bytes and their assigned alternates, and two manuals: *Pertec 4200 Installation Instructions* and *Using Pertec 4200 Hardware*, both dated July 1983.

The *Installation Instructions* are short and are primarily concerned with plugging in the two power cords and the tape drive cable. The cable connectors for the tape can be installed by hand; not even a screw driver is necessary. In seconds, the system is ready for power.

The *Using* manual describes two tapes (an "initial program load" or IPL tape and a FILE-SAVE tape) necessary to initialize the system. No tapes were delivered. Could the disk possibly be already initialized? Unfortunately, the cable coming out of the back of our terminal terminates with a male connector. So do the connectors on the Bantam. We'll have to get a gender-changer before we can plug in our terminal and see if the system boots properly.

**October 28th:** Federal Express delivers a package containing a certificate indicating the system is insured for \$20,000. (Back on October 5th, we had asked Bantam to supply something in writing indicating the equipment is fully insured while we evaluate it. Bantam certainly came through on that one.) Also delivered is a 3M tape cartridge labeled 2.0.4B IPL-ABS-FILE SAVE, so the disk probably wasn't already initialized after all.

The Pertec documentation says each tape cartridge holds 20 megabytes. Our Inmac catalog says a standard 3M cartridge (\$24.25) holds 300 feet of tape and stores 23 million bits. Like ½" tapes, those bits are apparently written in parallel as bytes across the tape width. Also in the catalog are extra-length 450 foot cartridges (\$27.25) that hold 34.5 megabits. We notice the tape delivered today from Bantam is extra-long.

A visit to the local electronics supply shop finds they want \$19 for a female/female cable, so we assemble one ourselves from a few dollars worth of wire, connectors and pins, using the wiring diagram in the *Installation* manual as a guide.

With some experimenting, we quickly determine what settings to use on our terminal in order to talk to the Bantam: 9600 baud, no parity, X-on/off handshaking, full duplex.

As described in the documentation, we try booting the system from tape, but the operation never seems to complete. The tape keeps suspiciously moving back and forth, and doesn't seem to be making much progress. After a few tries, we call Bantam and are introduced to Loki Efaw, their sales support manager. Loki explains that a successful boot from tape takes



# A picture is worth a thousand words.

ACCU-PLOT II from AccuSoft Enterprises is a new, easy to use graphics system that will produce bar charts, point-to-point line charts, scatter diagrams and pie charts in black and white or color.

ACCU-PLOT II is as easy to use as ENGLISH. The sentences used to produce graphs are similar to the "LIST" and "SORT" verbs you use every day. No modification to your dictionaries or data files is required.

ACCU-PLOT II is available for Microdata, Ultimate, ADDS Mentor, Evolution, CDI's IBM Series/1, Datamedia 932, General Automation Zebra and other PICK based computer systems. ACCU-PLOT II will operate on most dot matrix printers with graphics capabilities, including the IDS color Prism and other color graphics devices such as pen plotters.

Assembly language consulting available.

**AccuSoft Enterprises**  
8043 Foothill Boulevard  
Sunland, California 91040

## You will benefit from ACCU-PLOT II because:

- ACCU-PLOT II provides a quick and easy way for you to evaluate your business, saving you time and money.
- ACCU-PLOT II creates business charts using ENGLISH so you will not have to learn complicated instructions.
- ACCU-PLOT II works with your existing data files, thus no modification to your system is needed.
- ACCU-PLOT II works with a standard Printronix printer, which means you don't have to purchase additional hardware.
- ACCU-PLOT II interfaces with many output devices for a variety of black and white and color applications.
- ACCU-PLOT II creates bar, line, scatter and pie charts, allowing for presentation of data in various formats.
- ACCU-PLOT II pie charts may have "exploded" slices used for highlighting your information.
- ACCU-PLOT II is available for \$995.00 with a 30 day free trial period, so you can use it for one month without any financial obligation.
- ACCU-PLOT II has step by step loading instructions, making it easy to install.
- ACCU-PLOT II interfaces with COMPU-SHEET electronic spreadsheet so you can represent your worksheets in graphics form.

**Put the graphic power of ACCU-PLOT II at your command. For more information, mail this coupon or call (818) 352-1233 today.**

**Yes! Please send me more information about ACCU-PLOT II.**

Name   
Title   
Company   
Address   
City   
State  Zip   
Telephone (  )



as long as about five minutes, with the tape frequently moving in a back and forth motion. Although it may look like the tape is trying to overcome read errors, it's actually operating normally. We come to the realization that we probably just never gave the system enough time to finish booting, but instead prematurely gave up and retried the procedure before it had a chance to complete. With a little more patience and another try, the system finally boots and completes a file restore from the tape.

The first thing we notice upon logging on is that the MANUALS account mentioned in the documentation cannot be found, so we can't print any documentation. Loki informs us the account is no longer being distributed, and he'll send us a set of manuals.

Experimenting with a few typical Pick commands indicates that the system seems to be running just fine.

**October 29th:** The fan mounted on the rear of the Bantam is just loud enough to make the system a bit too noisy for a quiet office environment. A convection-cooled, fanless housing design, or at least a quieter fan, would be nicer.

Now that the file system has been installed, booting the machine from disk takes just seconds, instead of the minutes when booting from tape. Before the OPTIONS (X,F,A) prompt appears at the terminal, the system reports 512K of "core". That really should say "RAM" or "memory". The Pick system is showing its age.

Logging on to the system displays a banner that says "Welcome to Bantam", with Bantam in large block letters. The terminal we're currently using is limited to 1200 baud, and getting rid of those block letters would be nice. We edit ERRMSG item 335, expecting to find at least part of the banner, but no luck. Turns out the message is in the SYSTEM file LOGON item.

The POVf verb reports a total of 40,237 total frames (that's just under 21 megabytes), with 32,777 (almost 17 megabytes) still available. Plenty of room here for applications software.

We can't resist running some benchmarks. Of the seven tests published in *Pragma* to date, we immediately try all but the compile test, since the remaining six programs are all tiny and easy to type in. The results indicate the Bantam is the third fastest machine we've tested to date, being an average of about 18% slower than the Zebra (from only 15% slower on the MATH test to as much as 22% slower on the FIELD test).

Just what was loaded from Bantam's tape? Listing the SYSTEM file reveals nine items: ACC, BLOCK-CONVERT, COLDSTART, IPL, LOGON, PROCLIB, SYSPROG, SYSTEM and SYSTEM-ERRORS.

As expected, the ACC item defines the accounting history file. The BLOCK-CONVERT file not only contains data for block characters output by BLOCK-PRINT, but also contains the opcode mnemonics for BASIC object code, output when the (A) option is used with the BASIC verb. Unfortunately, the opcodes are different from those used by Microdata's compiler and so the incomplete uncompiler tables published in two previous issues of *Pragma* can't be completed by examining this file.

The COLDSTART item is a Q-pointer synonym for the SYSPROG account, and sure enough, there is a proc called COLDSTART in SYSPROG's Master Dictionary. When the system is booted, it logs on COLDSTART in order to execute

the proc and do some housekeeping, such as SET-TIME and SET-DATE.

The IPL item defines an account apparently set up for making IPL tapes. Using the COMPARE verb reveals that IPL is identical to the SYSPROG account except that IPL has two extra files and three extra verbs to support a logon proc named IPL that actually does the work of generating IPL tapes. Why a whole separate account was set up, instead of just including the tape-making items in SYSPROG, is not clear.

The COMPARE verb's (S) option for suppressing identical items doesn't seem to work, so we're forced to wade through a long listing while searching for differences between IPL and SYSPROG. One discovery is that each account has its own POINTER-FILE. Along with cataloged BASIC programs, these features are implemented quite differently than on Microdata systems. On a Bantam (and apparently other R80 Pick releases), source for a BASIC program is kept at the data level of a file, while object code is pointed to by items stored in the file's dictionary. For some peculiar reason, COPY won't let you see the pointer items, and the LIST-ITEM verb has to be used instead. Cataloging merely adds a verb definition to the Master Dictionary.

The SYSTEM LOGON item has already been described. PROCLIB defines the familiar public proc library, SYSTEM is the D-pointer that roots the entire file system, and SYSTEM-ERRORS defines a mysterious file containing two items. We'll explore the SYSPROG account tomorrow.

**October 30th:** A lengthy examination of the SYSPROG account doesn't reveal anything especially exciting. VERIFY-SYSTEM reports one mismatch in frame 168, but the operating system's object code doesn't seem to be in any file to allow MLOADing the bad frame. So how are VERIFY-SYSTEMS done? Must be by just comparing checksums, or some similar scheme, instead of comparing actual object code.

To really exercise this system, we're going to try loading and converting many new files and accounts from a Microdata. But before we move over a lot of software only to discover we can't backup the system, we had better first check our backup capabilities. So, we use CREATE-ACCOUNT to create a test account, ACCOUNT-SAVE it to tape, DELETE-ACCOUNT, then ACCOUNT-RESTORE. Everything works fine. The tape doesn't seem to stream, but it is quick anyway (the manuals say it is rated at 90 inches per second). Now it's time to plan for transmitting real files.

**November 2nd:** Today Loki confirmed that: the IPL account is only a temporary measure, to be obsolete once ABSDUMP and ABSLOAD are working; the frame 168 mismatch is caused by some port-counting initialization code; system object is not currently being distributed, so frames (in lieu of MLOAD and MVERIFY) can be reloaded by booting from the IPL tape.

**November 3rd:** Because all of our terminals have been tied up with other equipment, we've been using an Apple computer to emulate a terminal, and the Apple has been acting as our CRT and keyboard for the Bantam. Unfortunately, the Apple's program is not particularly fast, limiting throughput to roughly 1200 baud. This morning, Federal Express delivered two more packages from Bantam. The larger box has Lear Siegler artwork, but it also has another one of those "manufactured expressly for Bantam" stickers on the side. Inside is an ADM 11 terminal. The unit is quite nice looking: a 12" green phosphor screen in a compact housing with a small footprint and a tilt

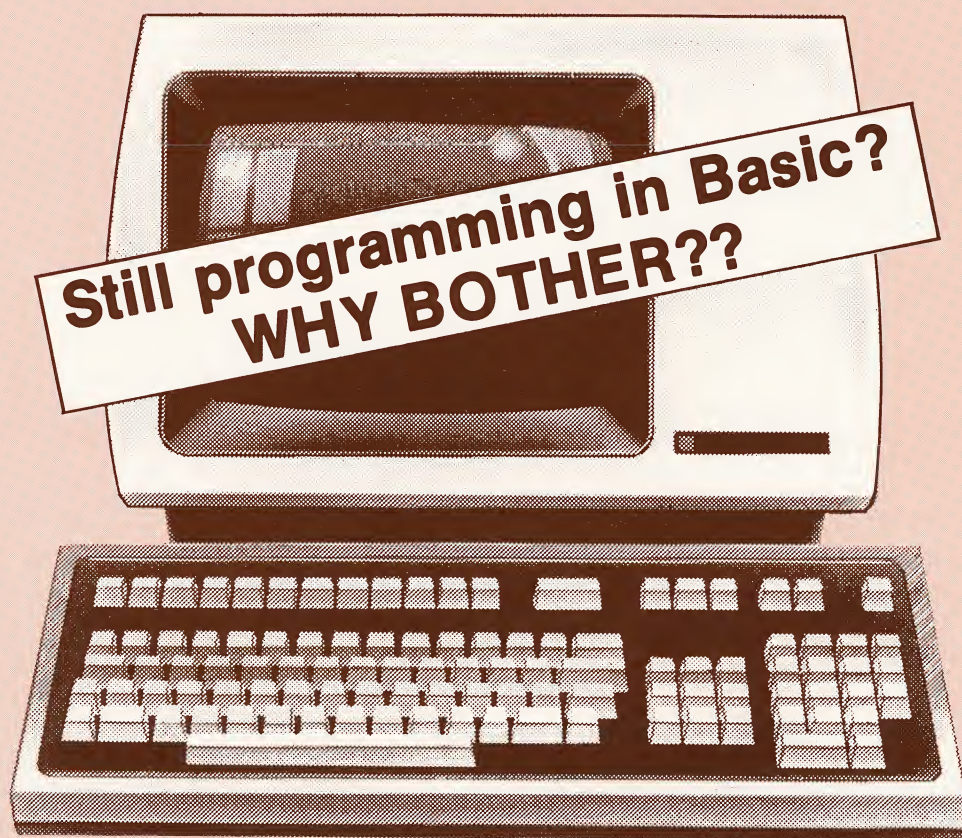


New From Brice Associates, Inc.

# X-Y-Z (3D)<sup>TM</sup>

The Ultimate Applications Generator

Three Dimensional  
Fixed Screen Data Entry  
For all 'PICK' Based Systems



The most powerful data entry package available!  
Anywhere!

A Software Package From Our Productivity Series



X-Y-Z (3D) from Brice Associates is a 'Pick' based software system which allows you to build a data entry or transaction program in minutes. A knowledge of procedural languages is not required. '3D' indicates three dimensions. The system supports the Pick record to its fullest. Entries may be made and maintained in the 'X' (field), 'Y' (value) and 'Z' (sub-value) dimensions.

In its simplest form, all that X-Y-Z (3D) requires is a list of fieldnames, starting with the record key. Execute the program and you're in business. Using built-in default capabilities, your program will consist of a screen with twenty prompts per screen page. X-Y-Z (3D) reads the dictionary of your data file to determine:

- \* The field number for each prompt (Line 002)
- \* The prompt to print on the screen (Line 003)
- \* Controlling/dependent relationships, i.e., 'Grouped Fields' (Line 004)
- \* Data conversions (Line 007)
- \* Data lengths (Line 010)

X-Y-Z (3D) gets you up and running in minutes! Expanding your list of fieldnames (i.e., 'Screen Item'), you may use the screen 'painting' program to:

- \* Add screen headings
- \* Separate screen pages as desired
- \* Print prompts at any x,y screen coordinates
- \* Enter data at any x, y screen coordinates
- \* Establish data windows for multiple or grouped fields

Your CRT is painted exactly as it will appear during your entry program. With X-Y-Z (3D) you never need to know screen coordinates, just make your screen pleasing to the eye. For each entry in your program you may add parameters which:

- \* Print screen entry masks
- \* Generate automatic data defaults such as:
  - \* String Values
  - \* Lists
  - \* Numbers
  - \* Dates/Times
  - \* Auto Assign Sequential Numbers
  - \* File Translations
  - \* String Extractions from Previous Inputs
  - \* Calculations
- \* Check data allowable edits, such as:
  - \* String Values
  - \* Pattern Matches
  - \* not (Pattern Matches)
  - \* 'Alpha' Data
  - \* 'NUM' Data
  - \* Index on Values
  - \* '>', '<' or '#' Value
  - \* Data Ranges
  - \* Date Patterns
  - \* Customized Subroutine Calls
- \* Set internal registers for storing data or totals
- \* Perform authority checks (i.e., table validations)
- \* Perform file translations (i.e., data is acquired from other files)
- \* Provide customized 'help messages'

Or, write your own routines if you'd like. You may also:

- \* Maintain a transaction log file
- \* Call custom subroutines
- \* Update up to 25 other files, from one entry record
- \* Plus much, much more!



X-Y-Z (3D) is an advanced software system with sophisticated data entry capabilities. Additional features include:

- \* Password protection (by port)
- \* Security levels/ids
- \* Protected fields
- \* Grouped multi-valued fields
- \* Forward/backward data scrolling
- \* Locate command to find needed data quickly
- \* Change/replace commands
- \* Append data in X, Y or Z dimensions
- \* Auto change mode for grouped data
- \* Backup to previous entries feature
- \* Insert mode option for values and sub-values
- \* Model (prototype) record feature
- \* Reverse video on prompts, data or both
- \* Sample systems for easy learning

#### **HOW TO USE X-Y-Z (3D):**

1. Setup your standard data dictionary items.
2. 'Paint' your CRT screen with our screen painting program.
3. Start entering data, you're done!

Measure your total elapsed time in minutes rather than hours or days! Add the advanced screen features at your leisure; we've made it easy, X-Y-Z (3D) does all the work. Ten single keystroke commands operate the system.

As changes occur in your entry requirements, simply change your screen parameters. X-Y-Z (3D) can write almost any entry process, without the need to learn a new language. No other product in today's market offers its completeness, power, flexibility or cost effectiveness.



## COMPARING PACKAGES?

Compare these features:	X-Y-Z (3D)	The Others
Non cryptic/easy to use	Yes	?
Rapid implementation	Yes	?
All processes menu driven	Yes	?
Written completely in data basic	Yes	?
Source code provided	Yes	?
Three dimensional capability	Yes	?
Dictionary entry program	Yes	?
Screen painting program	Yes	?
Parameter entry program	Yes	?
Low overhead requirements	Yes	?
Use of internal registers	Yes	?
Self documenting	Yes	?
Reverse video capability	Yes	?
Update multiple files	Yes	?
Custom user exits	Yes	?
All commands single keystroke	Yes	?
Sample systems for easy learning	Yes	?

PICK is a trademark of Pick Systems, Irvine, CA

### X-Y-Z (3D)

### ORDER FORM

- ☐ Please send me \_\_\_\_\_ copies of the X-Y-Z (3D) user manual.  
I have enclosed a check or money order for \$ \_\_\_\_\_ based on a \$25.00 per copy price.
- ☐ Please send information on The Productivity Series.
- ☐ Please send information on how to acquire sub-license rights.

name \_\_\_\_\_

company \_\_\_\_\_

address \_\_\_\_\_

city \_\_\_\_\_ state \_\_\_\_\_ zip \_\_\_\_\_

phone \_\_\_\_\_

*Send your completed  
order form to:*

**Brice Associates, Inc.**

1617 Woody Hill

El Cajon, Ca 92020

(619) 579-9345

(619) 566-5407



and swivel base. The detached keyboard is wide but very thin, and some preliminary hunt and pecks indicate a very good feel. The keyboard has a five-key cursor control pad plus a numeric pad, along with four shiftable, programmable function keys on the upper left and four more on the upper right. The only screen control is a slide switch near the lower left screen corner for contrast. The manual included with the terminal is a standard ADM 11 manual, but the keyboard has a Bantam label and the unit displays the word "bantam" when powered on, so even the firmware must have a few custom bytes inside. The second package contains the cable for attaching the terminal to the computer. We set up the terminal and power it on.

We power on the computer to test the new terminal. (We've been powering off the machine each night, probably not what a typical office would do, but this seems to cause no ill effects.) The OPTIONS prompt displays, but the computer seems to ignore any input we type. Something is wrong.

During installation, the terminal cable did not plug into the back of the Bantam very smoothly, and we noticed a small pop sound when the cable finally plugged in. Could the connectors have misaligned? Checking the terminal cable reveals that the female pins are seated rather poorly. The male pins on the back of the Bantam look decent, but maybe one loosened because of the poor fit while screwing in the terminal cable. We hook the Apple back up to find out if the problem is the terminal or the computer. Now the Apple fails to communicate too! The problem is in the computer, and is probably the connector that made a pop while installing the terminal.

By removing six screws on the back of the Bantam, we are able to remove its rear panel, revealing three ribbon cables, each one going from a back panel connector for a terminal to a connector on a printed circuit board. We find that the power supply is attached to the chassis with only four pressure clips. By temporarily removing the power supply, we can switch the cables for ports 0 and 2 (since we have to have a terminal on port 0 to boot). The inside of this machine is really crammed. Moving the power supply pulls its grounding cable off the main chassis, because the cable is so short. A short wire from the fan to the power supply also makes it difficult to open the back very much. The arrangement of ribbon cables near the fan assembly seems a little hastily designed, and various wires seem to be routed over sharp metal edges. We power the machine back on, check for smoke, carefully plug the terminal into the *bottom* connector (which is now port 0 because of the ribbon cable swap) and find that everything works! That poorly seated terminal cable must have bent something in the original port 0 connector.

We notice the time and date are still correct. The system must have a battery or non-volatile memory.

The terminal's display is a pleasing green with large, sharp characters. But every character we type is echoed twice on the screen. Also, the reverse video status line is distracting as it disappears and reappears, and the speaker emits a small but distracting "chirp" each time a key is hit. Looks like we need to reconfigure the terminal. A glance at the manual gets us started: hitting CONTROL SHIFT SET-UP causes the status line to start displaying terminal parameters in a multiple choice format. A few strokes on the cursor pad lets us select from the choices. We turn off the keyboard click feature, ask for a blank status line (other choices are normal, reverse, or blinking), choose cursor end of line wrapping (as opposed to no wrap), disable auto line feed, and set to full duplex. A CONTROL S saves the parameters in the terminal's non-volatile memory in case the unit is powered off, and hitting the

STATUS key gets us back on-line. Now the terminal acts just like we want it to.

**November 5th:** We have lots of software on 1/2" tape we would like to load onto the Bantam so we can do some significant software development that fully exercises the unit. Theoretically, we should be able to read the tapes on a machine with a 1/2" tape drive and transmit the software to the Bantam via a serial port. We write a RECEIVE program for the Bantam, a SEND program for an available Microdata, and modify our custom female/female cable to allow a terminal cable from the back of the Microdata to plug into the Bantam. We start RECEIVE running on the Bantam, and start SEND on the Microdata. This first version of SEND does a PRINT in order to transmit data, then an INPUT to wait for an OK from the Bantam to indicate it had finished receiving and storing the data. Unfortunately, the Microdata has old, unintelligent eight-ways that can't handshake, so the OK sent by the Bantam is often missed, causing the Microdata to hang. How about straight transmission with no handshaking? After including enough program delays to insure no data loss, it takes well over two hours to send only 2,000 small items. It would take days to send everything we wanted to send. By two o'clock in the morning, we decide to abandon any further attempts to transmit from a non-handshaking Microdata. Anyway, using INPUT statements to receive data means attributes over 140 characters long won't be properly handled without better programming than currently represented in SEND and RECEIVE.

**November 7th:** Pat Quinlan, Bantam's director of product services, calls to let us know that draft versions of some manuals are being sent. Later, Loki also calls to check on our progress and to answer some questions we had brought up: the CPU housing will eventually have a slightly different exterior design, along with some design changes inside, such as a power supply mounted by screws instead of clips; they've verified that COMPARE's (S) option does fail, but the bug has not yet been fixed; the SYSTEM-ERRORS file is designed to eventually serve as something similar to DISC-ERRORS on a Microdata, but it is not yet fully implemented. Ian Sandler, Bantam's resident software expert, also came on the line to explain that COPY refuses to list object code pointers because of its recognition of the DC code in the file's definition item, and since this was coded deep in the system, it would probably stay that way.

**November 9th:** A large box arrives by priority mail. It contains two binders, one labeled *DB/OS: Technical Overview*, while the other is *Easy: A Reference Guide*. Easy is Bantam's name for Pick's Access. Also enclosed is a letter from Pat Quinlan, explaining the manuals are drafts, and that he'll be calling in a week to give us background on Bantam's documentation objectives, strategies, standards, production steps, and so on. Pat goes on to explain how these draft versions are produced with the JET word processor with some headings typeset with a Kroy machine, then bound into standard three-ring binders. Final versions will be fully typeset and bound in the small binders currently so popular in the microcomputer world.

A dealer in Utah telephones to ask about *Pragma*, having been referred to us by Bantam. We ask for his impressions of Bantam, and he immediately launches into nothing but positive comments, especially for their personnel.

**November 10th:** The first winter rainstorm hit today. The power went out for a short while, but the Bantam crashed gracefully (our unit doesn't have the optional backup power supply). With power restored, a quick dummy FILE-SAVE



reveals no group format errors.

A printout originally dated October 14th arrives from Bantam in the mail, explaining the modifications made to the terminal's firmware to provide some changes from a standard ADM 11. The most useful improvement seems to be the screen saver feature which blanks the screen if the terminal is idle for more than a few minutes, in order to prolong the life of the phosphor.

We design, program and debug a simple game for next issue's Games department. Everything goes quickly and smoothly.

**November 11th:** We still want to move software from our tapes onto the 3M cartridges. At Loki's suggestion, we make plane reservations for a trip to Irvine, to allow us to use the conversion equipment at Pertec.

**November 16th:** We gather up seven tapes containing six ACCOUNT-SAVEs. The 8:35 AM flight takes us from Silicon Valley to Orange County to meet Loki at the airport. By 10 AM we arrive at Pertec. Because of the particular configuration of the equipment that's available, we first have to convert our tapes to a different density, then convert the new tapes to floppies, then load the floppies onto the disk of a Bantam, then copy the files from disk to cartridge tapes. We begin converting our 1600 BPI tapes to 800 BPI and finish about 1 PM, only to discover we wasted our time, because the program for later reading the 800 BPI tapes requires Pick-style labels, and these tapes have Microdata labels. We dash over to Pick Systems where Henry Eggers graciously donates a few hours of his time and uses an IBM Series/I to load each 1600 BPI account and write it back (on the same reel!) at 800 BPI with a Pick label. At 3 PM we go back to Pertec to copy the 800 BPI tapes to floppies, then copy from floppies onto a Bantam. By 5 PM we've started a FILE-SAVE to store all the transferred accounts onto one tape, and by 6 PM we're in the middle of completing a second backup tape consisting of six separate ACCOUNT-SAVEs for good measure. The conversions are all done by 7 PM, but now it's too late to catch any local flights back to San Jose, so Loki does the driving to get us to Los Angeles International. We're at LAX by 8 PM, catch the 9 PM flight back to San Jose, and are back in Silicon Valley by 10 PM. What a day.

**November 17th:** The converted accounts load onto our Bantam just fine. Overwriting the new accounts' Master Dictionaries with the contents of the NEWAC file corrects all verb definitions, while renaming all DL/ID pointers and using Q-pointers to define dictionary level files, along with defining POINTER-FILES and BP files with a DC item, brings all accounts around to standard R80-style file definitions.

Now that we have over 200 BASIC programs on the system, we should find out all kinds of interesting things about source program compatibility between Microdatas and Bantams.

**November 18th:** We find a bug! PRINT statements with cursor addressing to only a column and no row don't seem to be working. We also find that RTNs are apparently not allowed in R80 procs, but an X or simply the end of an item will successfully return us to a calling proc just as well.

**November 21st:** Selection criteria of the style WITH X will hang, but using WITH X NE "" works.

**November 27th:** Typeahead is lost whenever a CALL is executed.

**November 29th:** We tell Ian Sandler about the bugs we've en-

countered. Bantam has just finished release 2.0.12, their first production release, and Ian knows it definitely fixes some of the problems we've seen. Since we have 2.0.4, he'll check with Loki about sending us a new tape.

**December 1st:** We begin editing all our Microdata-style programs so they will compile without errors. For a start, this means at least changing all SHAREs to READs, INPUT USINGs to CALL GETs, and commenting out LOCKED clauses in READUs. We create a number of quick and dirty utilities to perform a lot of the conversion and prevent hours of monotonous editing. Most of the user mode OCONV calls from DATA/BASIC so prevalent in the Microdata world can be replaced by SYSTEM calls in PICK/BASIC. Referencing U50BB to get a WHO string is one exception. Is it safe to leave U50BB in our Bantam programs? We try it and it seems to work.

**December 2nd:** A day of more syntax changes to allow compiles. We fix all BREAK, LOCATE, DEL and INS statements.

**December 4th:** More changes. We remove all backarrows from INPUT statements and change all OCONVs to SYSTEMs for testing select list availability and the (P) option. All programs now compile without errors.

**December 13th:** Federal Express delivers two new cartridges, an IPL tape and a FILE-SAVE tape, marked as release 2.0.A.

**December 16th:** After making sure we have a good tape of our old system, we boot the new IPL tape and do a file restore of the new FILE-SAVE tape. A few ACCOUNT-RESTOREs quickly bring back all our old data, and a few COPYs of the new NEWAC bring all our Master Dictionaries up to date. The new system seems to run fine. A quick check shows the bugs we had previously seen are now gone. Ian verifies that U50BB is completely safe to use.

**December 29th:** Confident that during the past two months we have explored almost every aspect of using the Bantam as a "standard" R80 Pick machine, much as a typical installation might during a conversion from Microdata hardware, we call a brief meeting to see what kind of consensus can be reached about the desire to continue using the system for serious development work.

We all quickly agree that the Pertec hardware has performed very well. It has excellent speed and capacity, and has proved extremely reliable. The CRT terminal is also well designed and pleasant to use. The tape backup is relatively fast and convenient.

The Pick software provided is a complete implementation offering a perfect environment for our existing software. Although a few, easily avoided bugs were found in the early release, the system now appears quite clean. The software seems perfectly reliable, familiar, and easy to work with. Conversion of existing programs was not trivial, but it was straightforward.

Last but not least, the attention and support from Bantam personnel have been first class all the way.

Our unanimous vote: begin making arrangements for the permanent acquisition of a Bantam system.

□



# benchmarks

Are you thinking of doing an upgrade to your hardware or software? Are you comparing throughput and performance while shopping around for a system? Have you converted from one machine to another? Be sure to send in your benchmark statistics to Pragma, so the results can be featured in this department and shared with other installations.

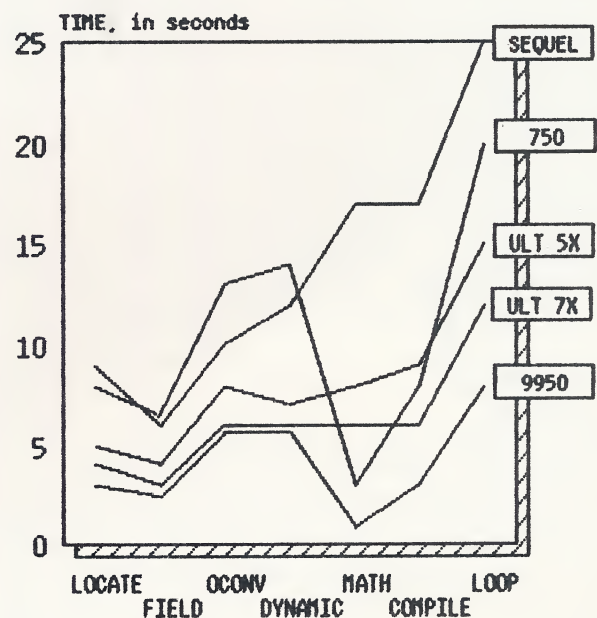
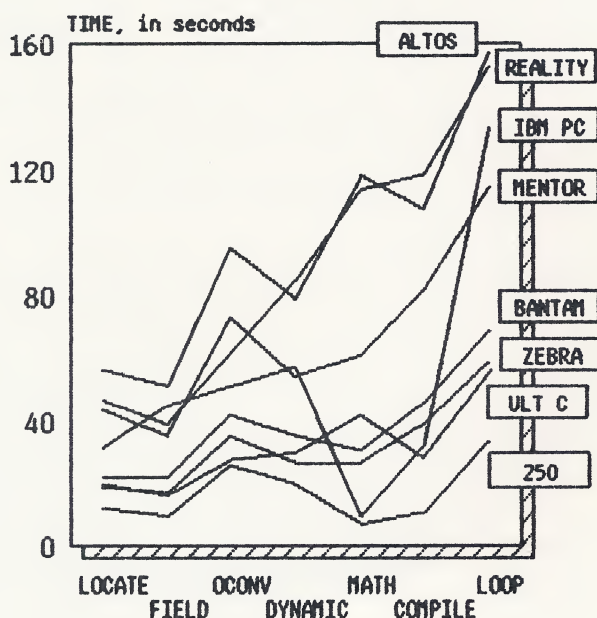
## New Timings For 8 More Machines

Our benchmark charts are brought up to date with the inclusion of timings for Altos, Bantam, Prime and Ultimate machines.

The charts below are new versions of the single graph published in the previous issue of *Pragma*. The Ultimate 5X and 7X timings were run under release 10 rev 121A, and under rev 110R for the C model. The Altos 586-40 results were obtained with release 2.3SO. The Prime 250, 750 and 9950 timings are averages obtained from multiple tests executed on essentially (but not completely) idle machines. As before, the IBM PC OCONV time is off scale at 610 seconds, and the Reality times are for MOS memory.

Our thanks to Eric Puchalski of Calcomp for the Prime times, to Randy Austin of Stanford Applied Engineering for the Ultimate C results, to Mike Adams at Ultimate Southern California for the 5X and 7X tests, to Alan Carl of Automation Consultants for the Altos results, and to John Brandon of Interactive Systems for validating the Zebra figures. And special thanks to Gerry Troy of Bantam for loaning *Pragma* a system as described in this issue's *Bantam Diary*.

P





# local user groups

Where are the local user groups and what are they up to? This regular department is designed to help our readers stay aware and informed of nearby groups and activities for computer users.

Why isn't YOUR user group mentioned below? To keep us informed of your group's activities and to appear in this department in future issues, keep *Pragma* on your mailing list and send us your group's newsletter!

## Colorado

Two issues of the Colorado Pick Users (CPU) newsletter arrived for the first time at *Pragma* late last year, but apparently this group has been active since at least early 1982. CPU's November meeting in Arvada featured speaker Durant Carpenter discussing how to identify and trouble-shoot problems with languages and utilities. The holiday season precluded any December meeting. January's meeting in Denver started the new year off with speaker Dick Pick presenting information on the much-awaited R84 release and its implications for users. The February 14th meeting will feature speaker Jim Harger on structured modular BASIC programming, while the March meeting will experiment with a new format and offer a panel of four experts to field members' questions. Users interested in becoming CPU members should contact Secretary Bill Ehlert by calling 303-321-8569 or writing to Box 3154, Denver, CO 80201. Individual memberships are \$35 per year, \$60 for corporate memberships.

## Southern California

Only one issue of the California Data Base Management Association (CDBMA) newsletter has arrived at *Pragma* since this department's last installment, so we have very little information on upcoming activities. The CDBMA November meeting featured a presentation by Rich Lauer of Ultimate on that company's 5X and 7X products, after 1983 Member of the Year Al Thompson started the program off with a technical session on A-correlatives. A full-day \$75 seminar was given in January, with a program including sessions on peripherals, system security, disaster planning and undocumented system features. For information on future activities, call Secretary Linda Ristow at 714-660-3657 or write CDBMA at 9740 Appaloosa Road, San Diego, CA 92131.

## Washington DC

After deciding in November to open their group to users of other Pick systems, members of the National Capital Area Microdata Users Group are now looking for a new name. If you have any ideas, or want more information about this organization, contact Stan Seidlitz by writing Continental Computer Services, 9489 Silver King Court, Fairfax, VA 22031 or telephoning 703-273-0816. To start off their new outlook, this group's December meeting featured marketing and technical presentations by Ultimate.

## Delaware Valley

Newsletter #9 from the Delaware Valley Data Base Management Association's newly elected vice-president Karl Carapellotti reported that this group's January meeting featured a lawyer discussing software legal problems such as infringement, ownership and protection. A sneak preview of Datamedia's Pick Spectrum '84 presentation will be shown at the February 16th meeting. Users interested in joining this group should contact President Jim Cates, in care of Pars Manufacturing, Box 149, Amber, PA 19002.

## Arizona

The October meeting of the Pick Users Group of Arizona featured an educational session on system and programming efficiency by Lyn Marshall and Bruce Hays. Most of the November meeting was occupied with discussions about the possibility of having a professional management group handle the organization's activities. Comdex attendees presented highlights and announcements from that conference at the December meeting, including information on General Automation's four-user machine to be released around March. The January educational session on ENGLISH was given by Dave Fisher, while the February session is scheduled to be on software engineering. Users interested in more information about the Pick Users Group of Arizona should contact Secretary Jodi Hilgenberg, Communication Skill Builders, Box 42050, Tucson, AZ 85733.

## Northern California

The Northern California Pick Users (NCPU) held their first "mini-roast" at their December meeting, after being entertained by the prestigious NCPU choir's popular Christmas medley, containing such wishes as "an offer from another company, 11 CE's freaking, 10 disk drives shrieking, 9 circuits breaking, 8 ports aborting, 7 Picks a picking, 6 Zebras braying, 5 IBM PC's, 4 memory cards, 3 printers printing, 2 ADDS Viewpoints and an Ultimate with cache memory". The January meeting featured a presentation on hand held data collection devices and terminals. The next meeting of this group is currently scheduled for Washington's birthday. For more information about this festive group, call Secretary Lisa Levsen at 415-632-0977 or write Box 6759, Oakland, CA 94603.

P



# IF YOUR BUSINESS IS LOOKING FOR A WORD PROCESSOR, GET JET...

## It's the PICK™ of the letter.

All you need is your computer, PICK™ operating system,  
one or more terminals and a printer.



Use your JET word processing software for:

- |   |  |
|---|--|
| <input type="checkbox"/> BUSINESS LETTERS | <input type="checkbox"/> MANUSCRIPTS   |
| <input type="checkbox"/> FORM LETTERS     | <input type="checkbox"/> PROGRAMS      |
| <input type="checkbox"/> REPORTS          | <input type="checkbox"/> BROCHURES     |
| <input type="checkbox"/> MEMOS            | <input type="checkbox"/> CHECKS        |
| <input type="checkbox"/> BILLS            | <input type="checkbox"/> MAILING LISTS |
| <input type="checkbox"/> INVOICES         | <input type="checkbox"/> DOCUMENTATION |

With JET you can interactively:

- ☐ SET LEFT AND RIGHT MARGINS
- ☐ SPACE EACH LINE TO THE SAME LENGTH
- ☐ CORRECT SPELLING BEFORE PRINTING
- ☐ CHANGE THE FORMAT AND LET JET REPRINT
- ☐ MAKE COLUMNS OF NUMBERS
- ☐ UNDERLINE AND BOLDFACE WORDS
- ☐ WRITE BASIC PROGRAMS AND PROC'S

\*PICK is a trademark of PICK SYSTEMS.

JET word processing software will save  
you time and money. So if you have been  
considering a word processor,  
look up to a JET,  
because a JET system  
really flies.

### ORDER FORM

☐ Please send me \_\_\_\_\_ copies of the JET user manual. \_\_\_\_\_ based on a \$25.00 per copy price.  
☐ I have enclosed a check or money order for \$ \_\_\_\_\_  
☐ Please send information on how to obtain JET word processing software.

name \_\_\_\_\_ company \_\_\_\_\_ address \_\_\_\_\_ city \_\_\_\_\_ state \_\_\_\_\_ zip \_\_\_\_\_

Send your completed  
order form to:

Sherry Elrod  
JET Software

580 Broadway, suite 213  
Laguna Beach, CA. 92651  
Phone: (714) 494-7080

# JET



# GET, Part 2: Source Code

The second half of a two part series of articles discussing input processors is presented. The actual source code for the GET routine and its subordinates is presented.

In *Part 1*, it was shown how the size and complexity of a program could be reduced by having it rely on data tables and an external program named GET for performing screen input and output. The source code for GET is listed on page 32. GET makes use of two additional routines called PUT and FIND, listed on this page.

Of the three routines, only GET is designed to be called directly from an application program. Both PUT and FIND exist to perform support operations for GET: PUT is responsible for actual output to the screen, while FIND is used to search for field labels in the GF\$LABEL attribute. The two support routines are externally defined for execution via CALLs only as a matter of convenience. They could just as easily be coded internal to GET and invoked via GOSUBs.

This version of the PUT routine happens to assume blank fill is to be used when displaying fields. Removing the commented code in PUT allows any character fill to be used. If the language environment supports arbitrary fill characters in format strings, then replacing the sharp sign in line 36 of PUT with a reference to the fill character as used in line 22 would be an even more efficient method of filling a field before its data is output.

Note that the GET.ORDER routine shown in *Part 1* is not the only example of a program using the GET processor, since the DISPOSE routine in this issue's *Vanilla Part 7* article has also been coded to perform screen processing with GET.

This version of GET offers rudimentary input of multivalued fields in addition to handling single valued attributes. The original table of screen definition attributes listed in *Part 1* includes a GF\$TYPE flag for indicating whether or not input should occur. If a "V" is stored in GF\$TYPE for a field, GET assumes the field is multivalued and allows the operator to step through the values whenever the character sequence specified by the *next.val* variable is input. In this version of GET, *next.val* is set equal to ASCII STX and a "D" in GET line 37, which happens to be the character sequence transmitted along with a carriage return by one of the CRT function keys on a Bantam computer. Any convenient control characters could be used just as well. Also note that line 90 of GET recognizes the backslash character as the command to cause data in a field to be cleared.

## PUT ROUTINE

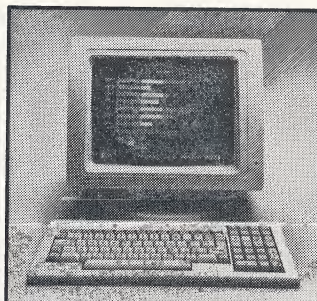
```
001 SUBROUTINE PUT(FMT,ARRAY,POS,VALUE,VPTR)
002 *
003 * FMT - table of field definitions
004 * ARRAY - dynamic array with value for output
005 * POS - which FMT field to output
006 * VALUE - the unjustified result
007 * VPTR - which multivalued to output
008 *
009 EQU GF$JUST TO 11
010 EQU GF$AMC TO 12
011 EQU GF$OPOS TO 16
012 EQU GF$OFLEN TO 17
013 EQU GF$OFILL TO 18
014 EQU GF$OCONV TO 19
015 EQU GF$OLEN TO 20
016 *
017 OPOS = FMT<GF$OPOS, POS>
018 COL = OCONV<OPOS, "G,1">
019 ROW = OCONV<OPOS, "G,1">
020 *** ASSUME BLANK FILL
021 *PRINT 2(COL, ROW):
022 *FILL = FMT<GF$OFILL, POS>
023 *IF FILL = "" THEN FILL = " "
024 *FILL = STR<FILL, FMT<GF$OFLEN, POS>>
025 *PRINT FILL:
026 *****
027 VALUE = ARRAY<FMT<GF$AMC, POS>, VPTR, 1>
028 PTR = 1
029 LOOP
030 CONVERSION = FMT<GF$OCONV, POS, PTR>
031 UNTIL CONVERSION = "" DO
032 VALUE = OCONV<VALUE, CONVERSION>
033 PTR = PTR+1
034 REPEAT
035 ** NOTE THAT # IMPLIES BLANK FILL
036 JUST=FMT<GF$JUST,POS>:"#":FMT<GF$OLEN,POS>
037 PRINT 2(COL, ROW) : VALUE JUST :
038 RETURN
039 END
```

## FIND ROUTINE

```
001 SUBROUTINE FIND(FORMAT, LABEL, POS)
002 *
003 * FORMAT - table of field definitions
004 * LABEL - a field label somewhere in FORMAT
005 * POS - returned position of LABEL in FORMAT
006 *
007 EQU GF$LABEL TO 3
008 *
009 POS = 1
010 LOOP
011 THIS.LABEL = FORMAT<GF$LABEL, POS>
012 IF THIS.LABEL = "" THEN
013 PRINT ; PRINT "Label ":LABEL:" not found!"
014 DEBUG
015 END
016 UNTIL LABEL = THIS.LABEL DO
017 POS = POS+1
018 REPEAT
019 RETURN
020 END
```



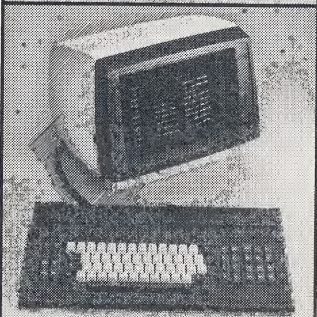
# ADDS STACKS UP BEST



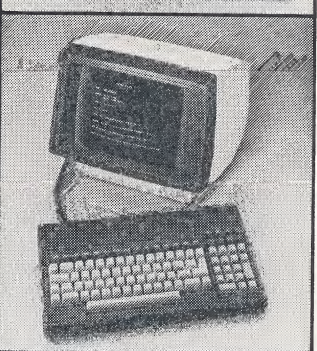
**VIEWPOINT®/Color.**  
The first truly low-cost color terminal.



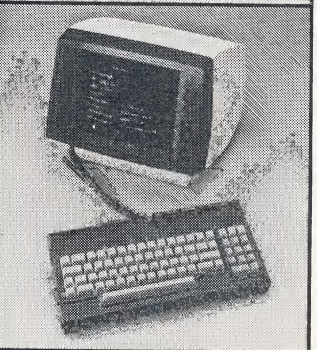
**VIEWPOINT®/90.**  
OEM's delight. . . double-high / double-wide, split screen, programmable function keys, down-line loadable, and more.



**VIEWPOINT®/78 and VIEWPOINT®/78 Color.**  
IBM functionality in monochrome and color.



**VIEWPOINT®/60.**  
A fully featured editing terminal.



**VIEWPOINT®.**  
Best price / performance in a conversational terminal.

VIEWPOINT is a registered trademark of Applied Digital Data Systems Inc.

**ADDS**  
Applied Digital Data Systems Inc.  
A Subsidiary of NCR Corporation

100 Marcus Boulevard,  
Hauppauge, New York 11788  
Tel (516) 231-5400

## IT ALL ADDS UP.



```

001 SUBROUTINE GET<RESULT, FORMAT, PRIOR, FIRST, FINISH, EXIT>
002 * RESULT - returned dynamic array after fields are input
003 * FORMAT - table of field definitions
004 * PRIOR - dynamic array of existing attributes before input
005 * FIRST - what field number in FORMAT to begin at
006 * FINISH - returns field number after last field processed
007 * EXIT - set to 1 (true) if "EX" was input
008 *
009 * Screenpro users should notice that
010 *
011 * CALL GET<RESULT, FORMAT, PRIOR, FIRST, FINISH, EXIT>
012 *
013 * tries to be very similar to
014 *
015 * INPUT RESULT USING FORMAT, PRIOR AT FIRST ...
016 * ... SETTING FINISH ELSE (EXIT is true)
017 *
018 *
019 EQU GF$LABEL TO 3
020 EQU GF$CLEAR TO 4
021 EQU GF$TEXT TO 5
022 EQU GF$LABELS TO 7
023 EQU GF$TYPE TO 9
024 EQU GF$AMC TO 12
025 EQU GF$REQ TO 13
026 EQU GF$COPY TO 21
027 EQU GF$PROMPT TO 22
028 EQU GF$PPPOS TO 23
029 EQU GF$IPOS TO 24
030 EQU GF$IFLEN TO 25
031 EQU GF$IFILL TO 26
032 EQU GF$ICONV TO 31
033 EQU GF$FILE TO 32
034 EQU GF$GOTO TO 37
035 *
036 PROMPT ""
037 next.val = CHAR(2):"D"
038 EXIT = 0
039 RESULT = PRIOR
040 START = FIRST
041 VAL.PTR = 1
042 LOOP
043 IF FORMAT<GF$LABEL, START> = "" THEN
044 PRINT "No label at ":START
045 DEBUG
046 END
047 FINISH = START+1
048 IF FORMAT<GF$CLEAR, START> = "Y" THEN PRINT CHAR(12):
049 TEXT = FORMAT<GF$TEXT, START>
050 ROWS = COUNT(TEXT, CHAR(252))+1
051 FOR PTR = 1 TO ROWS WHILE PTR <= 24
052 PRINT 3(0, PTR-1) : TEXT(1, 1, PTR) :
053 NEXT PTR
054 DISPLAY.LIST = FORMAT<GF$LABELS, START>
055 PTR = 1
056 LOOP
057 LABEL = DISPLAY.LIST(1,1,PTR)
058 WHILE LABEL # "" DO

```

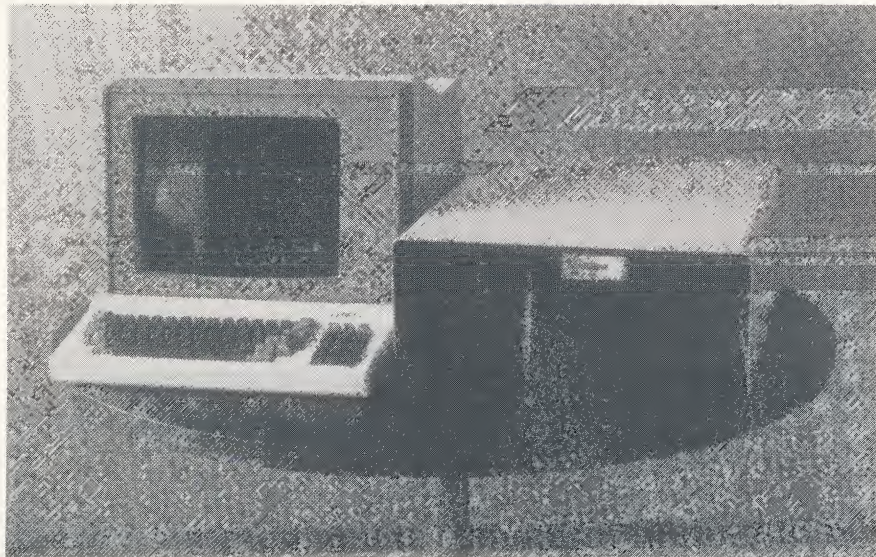
### GET ROUTINE

```

059 CALL FIND<FORMAT, LABEL, POS>
060 CALL PUT<FORMAT, RESULT, POS, IGNORE, VAL.PTR>
061 PTR = PTR+1
062 REPEAT
063 TYPE = FORMAT<GF$TYPE, START>
064 CALL PUT<FORMAT, RESULT, START, VALUE, VAL.PTR>
065 IF TYPE # "N" THEN
066 COPY = FORMAT<GF$COPY, START>
067 IF COPY # "" THEN RESPONSE = RESULT<COPY> ELSE
068 PPPOS = FORMAT<GF$PPPOS, START>
069 COL = OCONV<PPPOS, "G,1">
070 ROW = OCONV<PPPOS, "G,1">
071 PRINT 3(COL, ROW) : FORMAT<GF$PROMPT, START>:
072 IPPOS = FORMAT<GF$IPOS, START>
073 COL = OCONV<IPPOS, "G,1">
074 ROW = OCONV<IPPOS, "G,1">
075 PRINT 3(COL, ROW):
076 FILL = FORMAT<GF$IFILL, START>
077 IF FILL = "" THEN FILL = " "
078 FILL = STR<FILL, FORMAT<GF$IFLEN, START>>
079 PRINT FILL:
080 REQ = (FORMAT<GF$REQ, START> = "Y")
081 LOOP
082 PRINT 3(COL, ROW):
083 INPUT RESPONSE:
084 BEGIN CASE
085 CASE RESPONSE = "EX"
086 CALL PUT<FORMAT, RESULT, START, IGNORE, VAL.PTR>
087 EXIT = 1
088 RETURN
089 CASE RESPONSE = "" : RESPONSE = VALUE
090 CASE RESPONSE = "\": RESPONSE = ""
091 CASE RESPONSE(1,2) = next.val
092 IF (TYPE="V") & (VALUE # "") THEN VAL.PTR=VAL.PTR+1
093 GO TO 1
094 END CASE
095 WHILE (REQ & (RESPONSE="")) DO REPEAT
096 END
097 PTR = 1
098 LOOP
099 CONVERSION = FORMAT<GF$ICONV, START, PTR>
100 UNTIL CONVERSION = "" DO
101 RESPONSE = ICONV<RESPONSE, CONVERSION>
102 PTR = PTR+1
103 REPEAT
104 IF TYPE # "D" THEN
105 RESULT<FORMAT<GF$AMC, START>, VAL.PTR> = RESPONSE
106 CALL PUT<FORMAT, RESULT, START, IGNORE, VAL.PTR>
107 END
108 END
109 UNTIL FORMAT<GF$FILE, START> = "F" DO
110 LABEL = FORMAT<GF$GOTO, START>
111 IF LABEL = "" THEN START = START+1 ELSE
112 CALL FIND<FORMAT, LABEL, START>
113 END
114 REPEAT
115 RETURN
116 END

```





## SUNSHINE 60

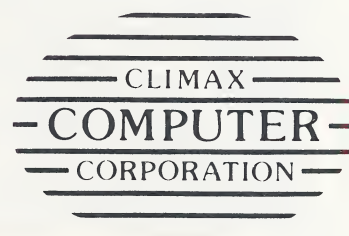
**Affordable Multi-User Pick™ Micro.**

Motorola 68000 CPU • 10 Slot S100 Bus • 256K Memory Expansion up to 1MB • Winchester Disk in Increments up to 100MB • 4 Ports • Operator Removable Winchester Disk Back-Up

List Price **\$9995**  
— AVAILABLE NOW —

# CLIMAX

THE PINNACLE OF TECHNOLOGICAL EXCELLENCE



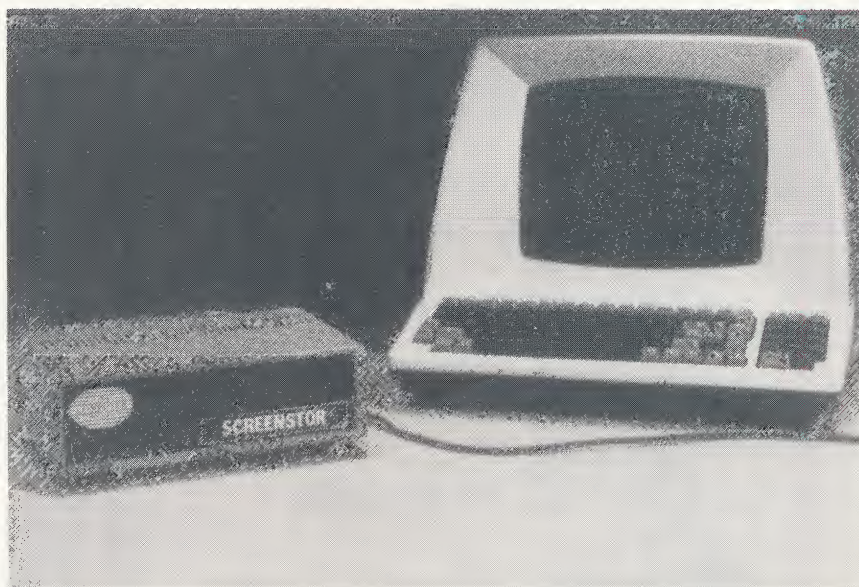
3605 West MacArthur Boulevard, Suite 702, Santa Ana, California 92704 ■ 714/557-2398

## SCREENSTOR™

**Cost Effective 'Intelligence' For Dumb Terminals**

By simply connecting screenstar™ between the host computer and the terminal, any terminal with an RS232C port is immediately upgraded to provide:

- Up to a 100 Page Terminal • A Terminal Which Works On Any Computer With An RS232C Interface • An Auxiliary Port Which Will Control a Slave Printer or Other Serial Device • Simple Installation • Easy-to-Use Access by a Prompt Menu • Backward and Forward Scrolling Facilities • Ability to Store Information • Character(s) Search Facility • Parameter/Character Conversion • Emulation to "Standardize" Different Terminals • Auxiliary Port to Connect Printer



List Price **\$485**  
— ORDER TODAY —

PICK is a trade mark of Pick Systems.  
SCREENSTOR is a trade mark of Climax Computer Corporation.



# A Preprocessor for Symbolic Statement Labels

A program for converting symbolic statement labels to numeric labels in other programs is presented.

RELABEL is a slightly modified version of the RENUMBER utility published in the first issue of *Pragma*. Just temporarily change RELABEL's symbolic statement labels (DO.LINE:, GET.CHR:, GET.SYMBOL:, REPLACE: and REP.LIST:) to numbers so you can compile RELABEL on your machine. (We used a Bantam; you may also need to change the LOCATE statement for your machine.) From then on, you can use RELABEL as a preprocessor before compilations in order to convert symbolic labels automatically, and you'll never again have to use cryptic numeric labels in your programs! P

```

RELABEL
001 EQU return TO 1
002 EQU label TO 2
003 EQU symbol TO 3
004 EQU string TO 4
005 EQU other TO 5
006 *
007 PRINT "File": ; INPUT FILE.NAME
008 OPEN FILE.NAME ELSE STOP
009 PRINT "Item": ; INPUT ITEM.NAME
010 READ SOURCE FROM ITEM.NAME ELSE SOURCE = ""
011 OBJECT = ""
012 LINE.COUNT = COUNT(SOURCE, CHAR(254)) + 1
013 OLD.LABELS = "" ; LABEL.COUNT = 0
014 FOR PASS = 1 TO 2
015   FOR LINE.NUM = 1 TO LINE.COUNT
016     GOSUB DO.LINE: ; PRINT "*":
017   NEXT LINE.NUM
018   PRINT
019   NEXT PASS
020 WRITE OBJECT ON "?" : ITEM.NAME
021 STOP
022 *
023 DO.LINE: TEXT = SOURCE(LINE.NUM)
024 COL = 1
025 LOOP
026 GOSUB GET.TOKEN:
027 IF (TOKEN#") & (TOKEN#") & (TOKEN#"REM") THEN
028   IF TYPE = label THEN
029     BEGIN CASE
030     CASE PASS = 1
031       LABEL.COUNT = LABEL.COUNT+1
032       OLD.LABELS(LABEL.COUNT) = TOKEN
033     CASE PASS = 2 ; GOSUB REPLACE:
034     END CASE
035     END
036   LOOP UNTIL (TYPE = return) ! (TOKEN = ";") DO
037   IF PASS = 2 THEN
038     BEGIN CASE
039     CASE TOKEN = "GO"
040       GOSUB GET.TOKEN:
041       IF TOKEN = "TO" THEN GOSUB GET.TOKEN:
042       GOSUB REP.LIST:
043     CASE (TOKEN = "GOSUB") ! (TOKEN = "GOTO")
044       GOSUB GET.TOKEN: ; GOSUB REP.LIST:
045     CASE TOKEN = "RETURN"
046       GOSUB GET.TOKEN:
047       IF TOKEN = "TO" THEN
048         GOSUB GET.TOKEN:
049       IF TYPE = label THEN GOSUB REPLACE:
050     END
051   END CASE
052   END
053   GOSUB GET.TOKEN:
054   REPEAT
055   END ELSE TYPE = return
056   UNTIL TYPE = return DO REPEAT
057   IF PASS = 2 THEN OBJECT(LINE.NUM) = TEXT
058   RETURN

059 *
060 GET.CHR: CHR = TEXT(COL,1) ; COL = COL+1
061 RETURN
062 *
063 GET.SYMBOL: *
064 LOOP
065   GOSUB GET.CHR:
066   VALID=((CHR MATCH "1A")!(CHR MATCH "1N"))&(CHR#")
067   WHILE VALID ! (CHR="") ! (CHR="#") DO
068     TOKEN = TOKEN : CHR
069   REPEAT
070   COL = COL-1
071   RETURN
072 *
073 GET.TOKEN: *
074 LOOP
075   GOSUB GET.CHR:
076   WHILE CHR = " " DO REPEAT
077   TOKEN = CHR
078   IF TOKEN = "" THEN TYPE = return ; RETURN
079   BEGIN CASE
080   CASE CHR MATCHES "1A"
081     START.COL = COL-1 ; GOSUB GET.SYMBOL:
082     IF CHR # ":" THEN TYPE = symbol ELSE
083     GOSUB GET.CHR: ; TOKEN = TOKEN : CHR
084     TYPE = label
085   END
086   CASE (CHR = "'") ! (CHR = '"')
087   LOOP
088   GOSUB GET.CHR:
089   UNTIL (CHR = TOKEN) ! (CHR = "") DO REPEAT
090   TYPE = string
091   CASE 1 ; TYPE = other
092   END CASE
093   RETURN
094 *
095 REPLACE: LOCATE(TOKEN, OLD.LABELS; POS) ELSE
096   PRINT "Label " : TOKEN : " missed on Pass One!"
097   STOP
098   END
099 NEW.LABEL = 10 * POS
100 PAST.COL = START.COL + LEN(TOKEN)
101 LEFT.PART = TEXT(1,START.COL-1)
102 RIGHT.LEN = LEN(TEXT)-PAST.COL+1
103 RIGHT.PART = TEXT(PAST.COL,RIGHT.LEN)
104 TEXT = LEFT.PART : NEW.LABEL : RIGHT.PART
105 COL = START.COL + LEN(NEW.LABEL)
106 RETURN
107 *
108 REP.LIST: *
109 LOOP WHILE TYPE = label DO
110   GOSUB REPLACE: ; GOSUB GET.TOKEN:
111   IF TOKEN = " " THEN GOSUB GET.TOKEN:
112   REPEAT
113   RETURN
114 *
115 END

```



Your PC can now be a "Personal Minicomputer" with the **Revelation Operating System** from Cosmos.

**Revelation** is a Relational Data Base Management System for the Personal Computer that provides minicomputer power at microcomputer prices. You can now have a small, portable computer that will serve as a working tool on the job, at home or on the road for less than \$5,000.

**Revelation** is PICK™ compatible and operates on the IBM™ Personal Computer, as well as the Columbia Multi-Personal™ Computer and the COMPAQ™.

As a Relational Data Base Management system, **Revelation** operates on top of MS-DOS™, allowing you to switch back and forth between either operating environment and utilize hundreds of existing programs.

Relational Data Base Management and **Revelation** provide easy access to your data on floppy or hard disk. You use meaningful field names to refer to the data you desire. You can also define relationships that exist between two or more fields.

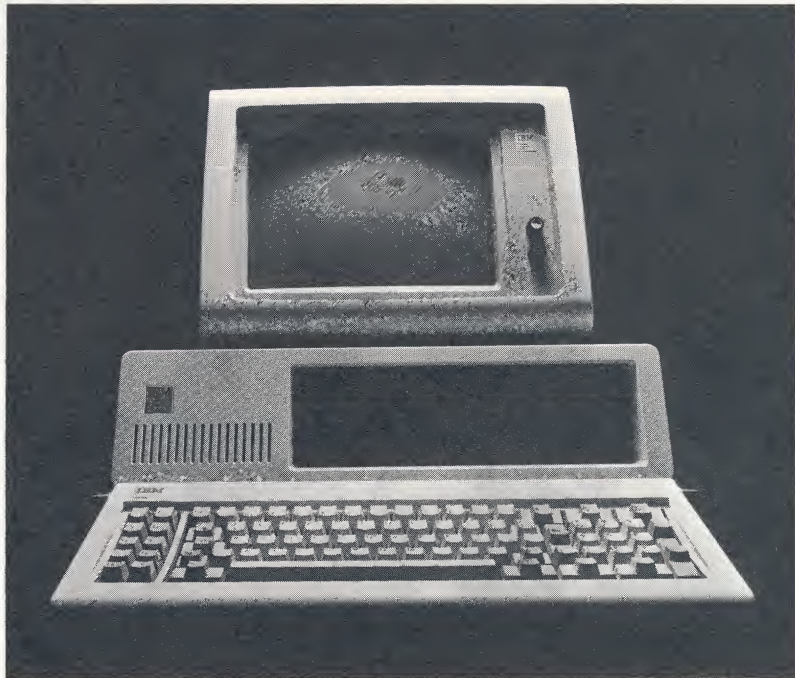
**Revelation** employs the Intel 8087 math chip on the PC for powerful number crunching capacity, floating point arithmetic and hardware mathematical functions.

Our application documentation and generation tools make **Revelation** ideal for software development and maintenance. And **Revelation's** advanced technology includes source code generation so you can do any job that needs to be done.

Communications problems between minicomputers and microcomputers are solved as **Revelation** allows your machine to communicate with compatible minicomputers.

Now you can afford the advantages of distributed processing.

# Why wait?



IBM Personal Computer

Collect data at a remote site during the day and ship it to your minicomputer when you want. You can also use your PC as a dumb terminal to initiate jobs on your local or remote minicomputer.

System Memory hassles are eliminated. Just add one of the many available 512K RAM boards to your microcomputer and you have the memory you need to do your work quickly and efficiently with **Revelation**.

Now you can have minicomputer capabilities at microcomputer prices. From Cosmos.

## Sample configuration

### Sample IBM System

- System unit, 64K RAM keyboard, 160K disk drive and disk drive adapter

#### System price

- 2nd 160K disk drive \$450
- Monochrome display \$345
- Monochrome display and printer adapter \$335
- 8087 math chip \$220
- 256K RAM with serial interface \$349
- Revelation software \$950
- MS-DOS \$40
- Total \$4,894**

### Minimum configuration

- 320K RAM
- 8087 math chip
- MS-DOS or PC-DOS
- One single-sided floppy drive

# COSMOS

P.O. Box AH  
123 Ferntree Drive W.  
Morton, WA 98356  
(206) 496-5974  
24-hour answering service: (206) 226-9362

MS/DOS™ of Microsoft Corp.; Intel™ of Intel Corp.; ADDS Mentor™ of Applied Digital Data Systems; PICK Operating System™ of PICK SYSTEMS; COMPAQ Portable Computer™ of COMPAQ Computer Corp.; Columbia Multi-Personal Computer is registered TM of Columbia Data Products Inc.



**FOR SALE**  
**Microdata™ Reality®**

64KB Memory  
20MB Disk  
800BPI Tape Drive  
8 Ports  
1 CRT Terminal

**Best Offer**

**Call Sheila Sievers at 513-277-8933**

**COPY MACHINE DEALER IS  
INTERESTED IN PURCHASING  
A FIELD SERVICE AND  
DISPATCH PROGRAM FOR A  
MICRODATA COMPUTER  
SYSTEM.**

**PLEASE CALL 612-835-3131  
EXT. 271**

**FOR SALE**  
**Microdata™ 50MB Reflex® I**

with Controller  
Microdata Maintainable  
**\$5,500.00 or Best Offer**

**Call Douglas Fulton or  
Brian Stone at  
California Pension Administrators  
(213) 936-1240**

Send for your **FREE** introductory issue of  
"LOGTO ZIRCON", the PICK world's latest  
newsletter designed to bring the end user  
valuable ideas and free programming tools.

Company: \_\_\_\_\_

Contact: \_\_\_\_\_

Street: \_\_\_\_\_

City/State/ZIP: \_\_\_\_\_

Phone: \_\_\_\_\_

**ZIRCON, 215 Salem St., Woburn, MA 01801**

# wish list

*The previous 80 Wish List items have been featured in issues  
#1 through #6 of Pragma.*

81. Assume all items when none is specified. Modify COPY and similar verbs so that if no item list is input, and no SELECT list is waiting, the system simply assumes that an asterisk was intended and that all items in the file should be processed (instead of reporting an error).

82. Execution trace for BASIC. Some language compilers and run-time systems are designed so that an optional statement trace is available: the system will output an annotated program listing showing the number of times each statement in a program was executed. This is particularly valuable for identifying program bottlenecks, since frequently executed statements can be immediately and easily identified in order to quickly improve program run times. Provide statement execution counts for BASIC on Pick-style systems.

P

## PHARMACY SOFTWARE

**(To run on any Pick® system)**

We knew what was needed when we developed it, because we're Pharmacists and users too. And that's why it is the most advanced and comprehensive Pharmacy software available.

**We have complete:  
Nursing Home Pharmacy Package  
Retail Pharmacy Package**

Dealer inquiry invited to set up on line and/or stand alone system.

**Contact David N. Zimmerman, PD, FACA, NHA  
ALLIED COMPUTER SYSTEMS  
(A division of)  
ASSOCIATED PHARMACY CONSULTANTS, INC.  
13700 Woodward Ave.  
Highland Park, Michigan 48203  
(313) 869-1806**



# WIZARD II

## The First Application Development System Is Brand New Again

Visit us at Pick Spectrum booth 218 and try the WIZARD II tutorials!

WIZARD II automatically generates complete data entry screens, reports, menus, and documentation.

In WIZARD II, an important emphasis has been placed on the concept of *levels of use*. A non-programmer works at a different level than a programmer. Consequently, WIZARD II has been designed so that non-programmers can quickly and easily create the programs they need, while still allowing experienced professionals to dramatically improve their productivity.

With WIZARD II, programming loses its status as an art form and immediately becomes 10 to 40 times more efficient. It also eliminates the problem of having only one programmer who can readily modify an application system.

WIZARD II provides on-line *help* at every question in the program creation process. WIZARD II even has on-line tutorials that demonstrate how WIZARD II works.

One of WIZARD II's many new and unique features is a powerful report generator that allows any information to be placed anywhere on a report.

Report *browsing* is another unique feature. Browsing allows you to scan forward, backward, left, and right through a report from a terminal. This alleviates stacking your desk with reams of printouts.

WIZARD II includes a year of updates and over-the-phone assistance.

**You Can Try WIZARD II For 30 Days For \$100.**

Automatic Programming Inc. • 32 Esplanade • Irvine CA 92715 • 714-552-2800



## Proven Pick System Software

for

- Order Entry/Distribution
- Property Management/Real Estate
- Staff/Resource Scheduling
- General Accounting
- Site Selection

from

**CTS Services, Inc.**  
**2720 Stemmons Freeway**  
**Suite 805**  
**Dallas, TX 75207**  
**214/637-3344**

### FOR SALE Microdata™ R6555

128K MOS Memory  
2 50MB Reflex® Disks  
2 8-ways  
1600BPI Tape  
300 LPM Printronix Printer  
2 Prism® CRTs

**Price Negotiable**  
**Contact Jan Vath • 408-730-1825**

### FOR SALE! ADDS Mentor 4060

60 MB Disk • 256K Memory  
16 Ports • 1600 BPI Tape  
Printer Controller

**BEST OFFER**  
**Brian Littleton • 800-225-5642**  
**Mechanical Insurance Associates**  
**16633 Ventura Blvd. • 8th Floor**  
**Encino, CA 91436**

# queries

*Of the 26 Queries that have been featured in issues #1 through #6 of Pragma, six Queries still remain unanswered.*

**27. What are program and application generators?** A program generator is a program that creates other programs. A fancy system of program generators capable of also generating files, dictionaries, menus and documentation (in other words, capable of generating a complete application system) is often given the more encompassing name of application generator.

Generators take advantage of the fact that computer programs for doing data processing often deal with basic, repetitive aspects of transaction handling common to all applications. For example, any comprehensive manufacturing, distribution or accounting system will contain large numbers of programs that all look very similar to one another, because most input programs will typically have to display forms on the screen, perform validation of input, and open and read and write files, while most output programs will be concerned with the output of selected or sorted lists of tabulated columns. As a result, large portions of code, especially control structures, will be repeated in program after program. To spare the programmer from having to reinvent the same code over and over, a program generator is designed to automatically create all or portions of such programs, often after using no more than a file's dictionary as a guide to what the generated program should do.

Some generators can optionally serve as a kind of giant subroutine, immediately performing the necessary processing themselves instead of generating a program to do it. Using a generator as a subroutine avoids creating one more program that needs to be documented and maintained from then on, but the generator itself may be a huge program (designed to handle many esoteric, seldom used functions) that bogs down system performance. Using generated code instead of calling the generator as a subroutine allows one to modify and customize the generated program, which will typically be smaller than the generator that created it.

**28. How can an item with a blank in its identifier be edited?** Enclose the item identifier in single quotes when you input the EDIT command.

**29. How can the first, say, 20 items be selected out of a file?** Some implementations support a numeric option on the COPY verb to specify how many items should be copied out of a file. Another method would be to SELECT the file, SAVE-LIST, and then EDIT-LIST to delete all but the first 20 identifiers. A third method would be to create a dictionary word called NUM using the correlative "F;NI", and then use the command SELECT... WITH NUM LE "20".

□



## Microdata™ Sale

Reality® 6000	Reality 1600
128K MOS	128K Core
8 Ports	12 Ports
2 Reflex® I's (100MB)	2 Reflex I's (100MB)
300 LPM	300 LPM
Dataproducts	Dataproducts

Reality Evolution	Reality 1600
64K Core	112K Core
24 Ports	12 Ports
Reflex I (50MB)	Reflex II (128.7MB)

DATAWORKS specializes in providing turnkey Manufacturing, Distribution and Financial systems using proven IBM Series/1, ADDS Mentors, General Automation Zebras and Microdatas.

**Call Gene Cranford at 619-457-3070**

## PRICED TO SELL

### Microdata™ Royale™ C

4.0 Operating System  
25IPS 800BPI DMA Tape Drive  
1 50MB Reflex® I Disk  
64K Core Memory  
Printer Controller  
16 Active Ports  
\$15,000

### Microdata Royale

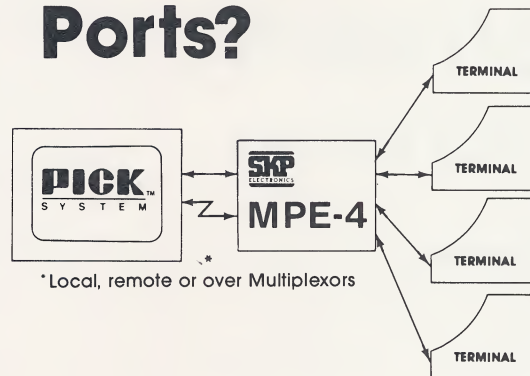
4.0 Operating System  
25IPS 800BPI Concurrent Tape Drive  
1 10MB Disk  
56K Core Memory  
120 CPS Matrix Printer  
4 Active Ports  
\$5,000

**ALSO FOR SALE:** 1 50MB Reflex I Disk, \$5,000  
2 8-Way Boards with 8 Open Ports, \$1,500/EA

**ALL OFFERS CONSIDERED**

**Priscilla Cain • (206) 938-3569**

## Need More Ports?



The MPE/4 allows 4 terminals to share one CPU Port. All electronic switching with optional log off. For more information call or write:



1232-E South Village Way  
Santa Ana, CA 92705  
(714) 972-1727

Pick Systems is a trademark of Pick Systems, Inc.

## FIXED ASSET/PREPAID EXPENSE ACCOUNTING MODULE

By Diogenes Computer Systems, Inc.  
Specialists — Properties Management  
Real Estate Construction

- \* Easy to use
- \* Hardcopy Validation/Backup
- \* Flexible Accounting Periods
- \* Book, Tax and State Calculations
- \* Supports all IRS Approved Methods
- \* 2 Years of Proven Reliability
- \* Built in Security
- \* Complete User and Program Documentation
- \* Stand-Alone or Integrate with your G/L
- \* Includes 1981 Economic Recovery Tax Act
- \* Recapture Calculated Automatically
- \* Depreciation Forecasting Module
- \* Demonstrations Available in New York Metropolitan Area

**AFFORDABLY PRICED AT \$2500.00**

Integration and Implementation Available

For More Information —

Call — (201) 764-7282 8 A.M.—8 P.M.

Write — Diogenes Computer Systems, Inc.  
P.O. Box 667  
Highland Lakes, N.J. 07422

Software Licensing Inquiries Invited



# Bantam Software Overview

An introduction to the available software from Bantam Computers.

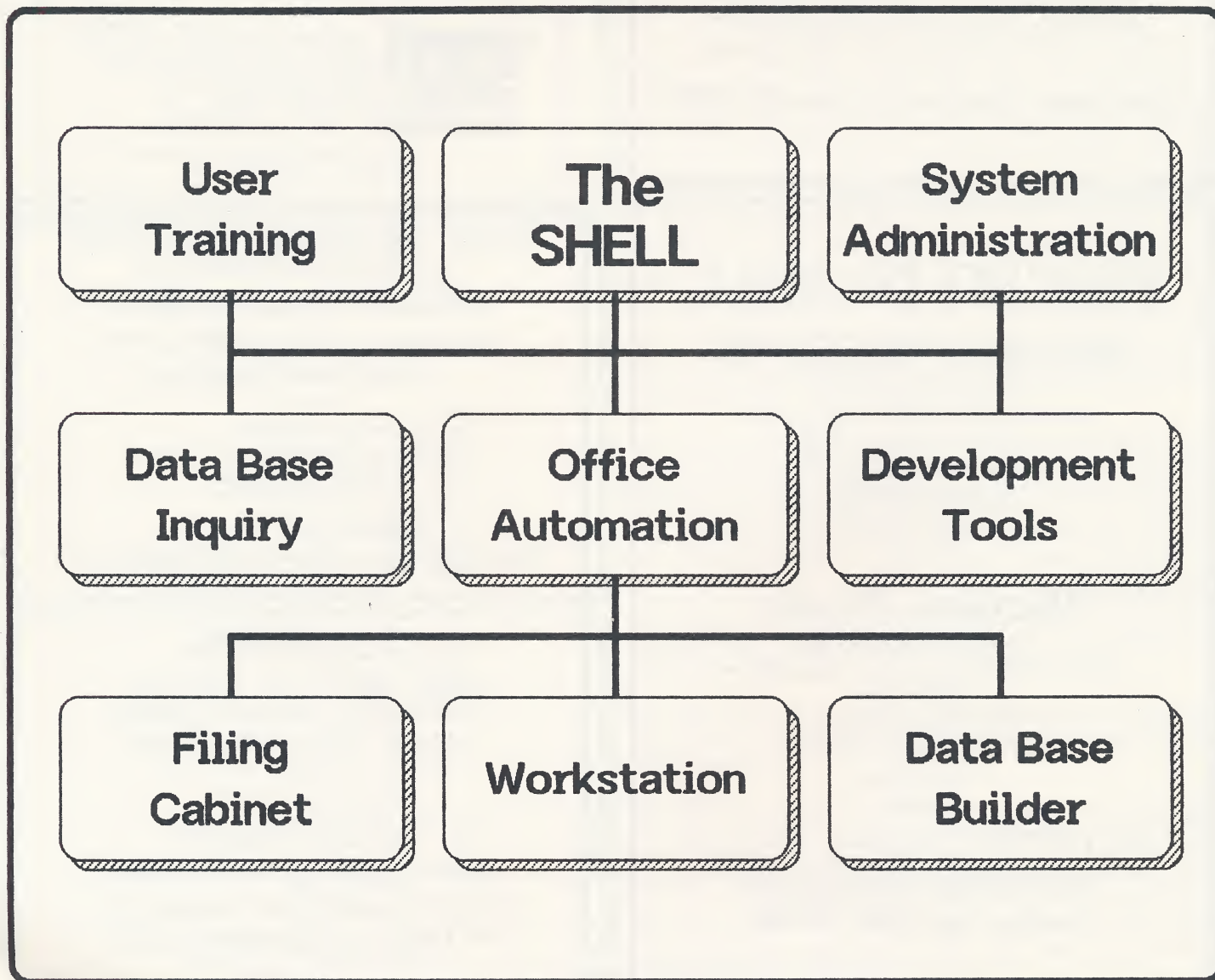
The *Bantam Diary* in this issue makes it clear that a complete implementation of the Pick operating system lives on Bantam machines. What isn't obvious from the *Diary* is that the soft-

ware developers at Bantam Computers have also added a complete extra layer of software on top of the Pick system. It is called the Bantam SHELL, which is organized as a collection of menus giving access to software designed to make the Pick environment especially user-friendly. The SHELL's major components are shown in the diagram below. (The SHELL software was not shipped to *Pragma* as part of the machine that was supplied for our evaluation. However, our personnel observed much of the SHELL in action during a tour of Bantam's offices early this year.)

Undoubtedly the most interesting portion of the SHELL environment is the Office Automation menu, which leads to the Workstation subsystem, the one area where most office users of Bantam equipment will probably spend their time.

The Workstation software is essentially a "command post" for storing, changing and moving information throughout the computer system. Typical commands available in the Workstation allow: the filing of documents in a "filing cabinet", the sending of mail to other users, and the updating of data files and text documents. Together with the other modules diagrammed below, the SHELL is perhaps the most complete system and application environment available on a Pick system today.

P





# GAAP<sup>TM</sup> II

## Financial Management

### The Software Package You Can Account On.

GAAP Financial Software ... the only accounting tool you will need to make management decisions. Accurate. Flexible. User-friendly. KDK's software system is fully integrated with built-in security control. Automatic is the key word. The components of GAAP include:

#### GENERAL LEDGER

The ultimate bookkeeper supplies comprehensive audit trails by accounting and entry date, summary and working trial balances, detailed general and subsidiary ledgers and unlimited USER-DEFINED financial statement formats. All reports may access ANY accounting periods at any time. Statements allow flexible reporting of net, budget, budget variance and comparative percentage ratios for period-to-date and year-to-date activity on a cash or accrual basis ... with optional consolidation by company.

#### ACCOUNTS PAYABLE

Track your payables and accruals accurately by vendor, voucher and G/L account. Automatic payment scheduling, manual and system-generated disbursements, cash requirements reconciliation simplify payable processing.

#### ACCOUNTS RECEIVABLE

Generate balance forward or open invoice statements, finance charges, aged trial balances and analysis reports for selected groups or all clients. Payment on account, open invoice and delinquent account processing assist in receivables turn around.

#### PAYROLL

Manual as well as automatic check distribution to employees at multiple locations ... with job costing interfaces. GAAP standard payroll reporting takes W2 and multi-state taxing into account.

Other completely interfaceable products offered by KDK include: Purchasing/Receiving, Inventory Control, Hotel Management and Apartment Billing.

GAAP ... financial management software designed to enhance your PICK operating system. Complete and return the coupon below or call KDK today about discounts offered on our software through January 1984!



KDK Enterprises, Inc.  
Suite 302  
1491 Chain Bridge Road  
McLean, VA 22101  
(703) 893-7883

I'd like to know more about GAAP—the accurate and flexible financial management software for my PICK operating system; please send your FREE brochure.

Name: \_\_\_\_\_ Title: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_  
Company: \_\_\_\_\_ Address: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
City: \_\_\_\_\_ Computer: \_\_\_\_\_



KDK Enterprises, Inc.  
Suite 302  
1491 Chain Bridge Road  
McLean, VA 22101  
(703) 893-7883





SCOTTY

**A Computerized Business Accounting System**  
Laguna Software & Consulting, Inc. (714) 494-1092

## USER TRAINING for

Pick® and Pick styled  
Operating Systems

- Courses conducted nation-wide
- On-site training at your facilities
- Custom education services

from

**Learning Sciences Corp**

**8404 Magnolia Ave., Suite D  
Santee, CA 92071**

**(619) 449-7393**

# letters

If you use a Pick system, Pragma wants to hear from you. Have you developed applications of interest to other users? Do you plan to acquire new hardware? What features would you like to see in Pragma? Are you active in any type of user group organization? Write Pragma today. All letters to the Editors are welcome, and as many as possible will be published in the Letters Department in every issue.

### RPG To BASIC Conversion Tool Wanted

We presently are utilizing a Prime 750 in our day-to-day operations in a collection company and are interested in whether or not there may be software available somewhere in this country to complement our business.

In our search for software of this nature, we came upon a very interesting system utilizing RPG and would further inquire as to whether or not there is a converting package available to take the language of RPG and place same into BASIC.

We appreciate any information you may have in this regard and we certainly enjoy the many articles that have been furnished in your few issues to this date.

Charles C. Martin, Jr.  
Frost-Arnett Co.  
Nashville TN

*We know there are a number of companies that specialize in providing language conversion tools, such as Dataware in Buffalo and DASD in Milwaukee. (Both typically advertise RPG to COBOL converters, but they may be able to help you anyway.) Or, you might try searching one of the many available software directories, such as the ICP publication out of Indianapolis.*

*However, our vote is that you should continue looking for other software. RPG is archaic enough, but an RPG system converted to BASIC could probably be considered a programmer's nightmare, especially once modifications are needed and attempted. Somewhere you should be able to find collection software written in BASIC or some similar language more conducive to conversion than RPG. We know that Ultimate Software Systems in Fairfield, California offers a collection package for Pick machines, but we aren't familiar with the product. Also, your Prime salesman should also be able to help you contact the Prime Information user group, which might know of other collection packages.*

*Good luck and let us know what you find.*

— Editors





# PROGRAM MAINTENANCE.

## IT'S AN IDEA WHOSE TIME HAS GONE.

Most application programmers should really be called maintenance personnel: 60 to 80 percent of their time is consumed making "quick" patches. While the applications development backlog steadily mounts.

Fortunately, users of Microdata computer systems have a way to break the logjam: ALL™. The Application Language Liberator.

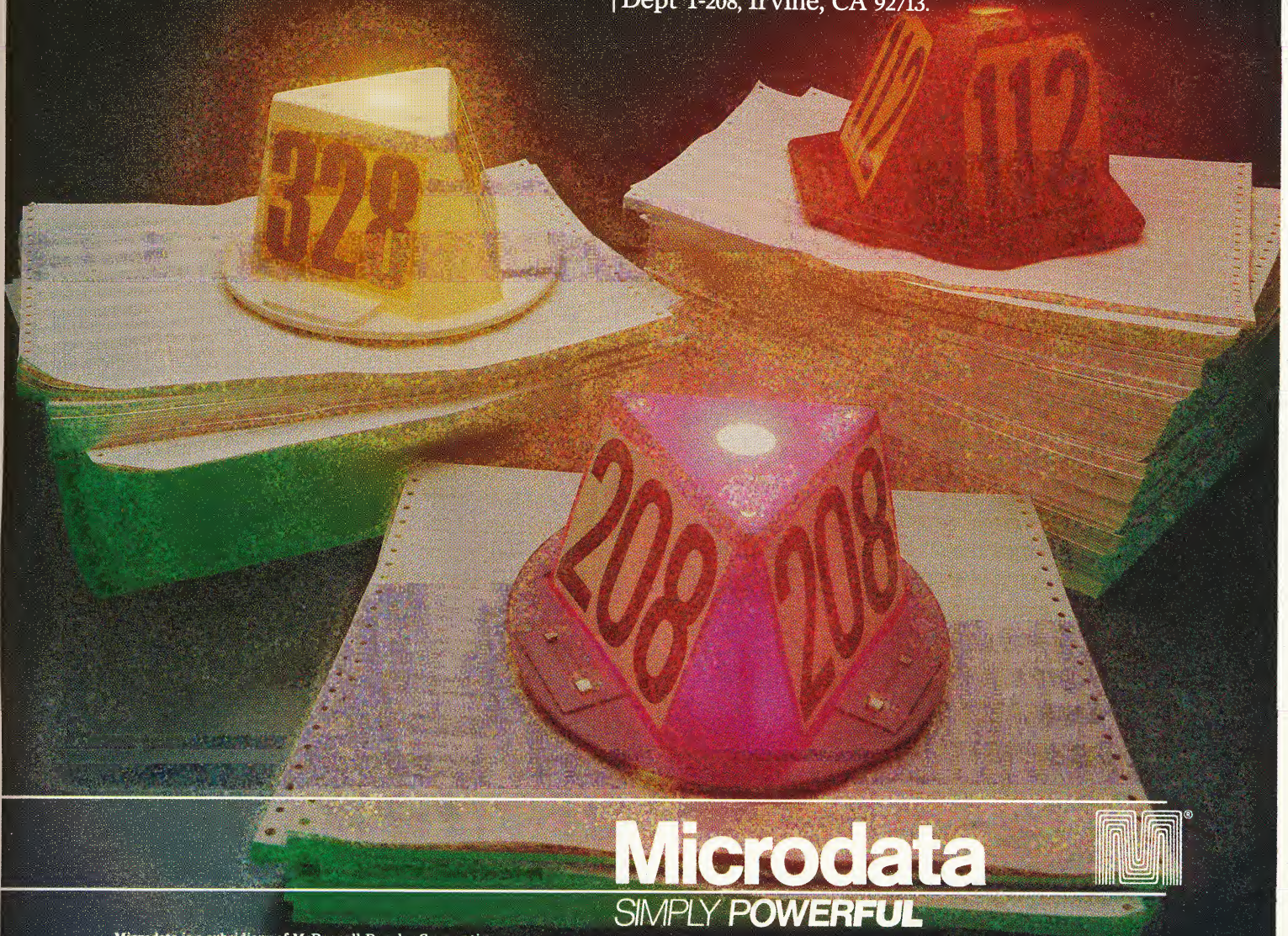
ALL users define their applications on a series of menu-driven input screens. While ALL automatically builds the application from a comprehensive set of debugged, machine language building blocks.

ALL handles labeling, format definition and documentation according to predefined standards. So update and maintenance time is slashed dramatically. (Even when the original programmer has moved on.)

ALL cuts new application development that once took months down to a few days work. Major applications involving complex file structures, multi-level input screens, multiple report formats, menus, utilities, detailed math and logic functions, and security access provisions can be developed easily using the ALL system.

Imagine! Less maintenance. Automatic documentation. Faster development. Bye-bye backlog.

For more information on an idea whose time has come, write Microdata Corporation, P.O. Box 19501, Dept T-208, Irvine, CA 92713.



**Microdata**  
SIMPLY POWERFUL



Microdata is a subsidiary of McDonnell-Douglas Corporation.

© 1983



# games

## Slide

A simulation of the popular puzzle where a player must slide interlocked tiles inside a square, one tile at a time, until all tiles are in order.

The program beginning on this page displays a four-by-four array of lettered tiles, with the last tile missing. When the program is executed, it asks the player how many times the tiles should be shuffled. Entering a large number, say 100, is enough to make the puzzle interesting.

The player gets to watch the program shuffle the tiles on the screen, after which the program will prompt for the letter of a tile to be moved. The player must enter letters for tiles, one at a time, until all tiles are displayed back in alphabetic order. As each letter is entered, the corresponding tile is moved. Once all tiles are in order, the program reports the total number of moves made by the player, and then stops. A move is counted, but not made on the screen, if a given tile letter is input but the tile can't possibly be moved.

The use of negative screen co-ordinates and an MCN conversion in the program is a good indication that it was written in PICK/BASIC. Sure enough, this is the game designed, written and debugged on the Bantam computer as described in this issue's *Bantam Diary*.

©

For many people, computers are synonymous with games, now that the video game industry has become such a giant. Programmers frequently cut their teeth on small game programs, since such programs are often straight-forward and self-contained without a lot of complicated interfaces to files or other software. And, more than anything, games are simply entertaining and fun.

The Games Department will be making periodic appearances in *Pragma*. If you have a game program you would like to share, send it in for publication. If there's anything the *Pragma* staff has time to do, it's "performing rigorous software quality assurance" (in other words, trying out a new game on the computer).

```

SLIDE
001 DIM AT(15)
002 PROMPT.POS = 2(0,18)
003 EOL = 2(-4)
004 PRINT 2(-1): ;* CLEAR SCREEN
005 *
006 EMPTY = 16
007 FOR POS = 1 TO EMPTY
008   LTR = CHAR(POS+64)
009   GOSUB 100 ;* PAINT TILE
010   IF POS # EMPTY THEN AT(POS) = POS
011 NEXT POS
012 *
013 LOOP
014   PRINT PROMPT.POS:"HOW MANY SHUFFLES":EOL:
015   INPUT SLIDES
016   SLIDES = ICONV(SLIDES,"MCN")
017 UNTIL SLIDES > 0 DO REPEAT
018 *
019 LOOP
020   LTR.POS = RND(15)+1
021   LTR = CHAR(LTR.POS+64)
022   GOSUB 200 ;* SLIDE TILE IF MOVABLE
023   IF MOVABLE THEN SLIDES = SLIDES-1
024 UNTIL (SLIDES <= 0) & NOT(ALIGNED) DO REPEAT
025 *
026 MOVES = 0
027 LOOP
028   LOOP
029     PRINT PROMPT.POS:"SLIDE WHICH TILE":EOL:
030     INPUT LTR,1:
031     LTR.POS = INDEX("ABCDEFGHJKLMNO",LTR,1)
032     UNTIL LTR.POS # 0 DO REPEAT
033     MOVES = MOVES+1
034     GOSUB 200 ;* SLIDE TILE IF MOVABLE
035 UNTIL ALIGNED DO REPEAT
036 PRINT PROMPT.POS:MOVES:" MOVES!":EOL
037 STOP
038 *
039 100 * DRAW TILE NAMED LTR AT POS
040 COL = 6*MOD(POS-1,4)+3
041 ROW = INT((POS-1)/4)*4+2
042 L.COL = COL-3
043 R.COL = COL+3
044 ROW.LO = ROW-2
045 ROW.HI = ROW+2
046 FOR C = L.COL TO R.COL
047   FOR R = ROW.LO TO ROW.HI
048     PRINT 2(C,R):
049     IF POS=EMPTY THEN PRINT "X": ELSE PRINT " ";
050   NEXT R
051 NEXT C
052 IF POS # EMPTY THEN PRINT 2(COL,ROW):LTR:

```



# How Can Your Direct Mail Flyer Reach Thousands of Pick Users for Only 34¢ Per Name?

To find out,  
call Pragma today!  
408-688-9200

```

053 FOR C = L.COL TO R.COL
054 FOR R = ROW.LO TO ROW.HI STEP 4
055 PRINT 2(C,R);"+":
056 NEXT R
057 NEXT C
058 FOR R = ROW.LO TO ROW.HI
059 FOR C = L.COL TO R.COL STEP 6
060 PRINT 2(C,R);"+":
061 NEXT C
062 NEXT R
063 RETURN
064 *
065 200 * MOVE IF POSSIBLE
066 POS = AT(LTR,POS)
067 MOVABLE = (EMPTY=(POS-4)) ! (EMPTY
=(POS+4))
068 MOVABLE = MOVABLE ! (((EMPTY=(POS-
1)) & (MOD(POS,4)#1)))
069 MOVABLE = MOVABLE ! (((EMPTY=(POS+
1)) & (MOD(POS,4)#0)))
070 IF MOVABLE THEN
071 AT(LTR,POS) = EMPTY
072 EMPTY = POS
073 POS = AT(LTR,POS)
074 GOSUB 100
075 POS = EMPTY ; LTR = ""
076 GOSUB 100
077 END
078 ALIGNED = 1
079 FOR I = 1 TO 15
080 ALIGNED = ALIGNED & (AT(I) = 1)
081 NEXT I
082 RETURN
083 *
084 END

```

## OUR SOFTWARE SAVES YOU MONEY

4 OUT OF 5 PEOPLE WHO TRY  
OUR PRODUCTS BUY THEM.  
HERE'S WHY

### Up and Running in 10 Minutes

Our products are designed to be loaded onto your system and running efficiently in minutes.

### All Our Products Are Thoroughly Documented

Our documentation is written by a staff of accomplished writers who provide technical articles for numerous publications. We explain precisely what needs to be done and how to get there. The newest user will feel confident and productive in no time.

*File-Sizing Tool* will resize all files on your PICK system quickly and accurately. \$475.00

*Electronic Mail* allows users to write letters to each other using terminals. Correspondence for all or any users may be printed at any time. Electronic Mail saves phone costs when communicating inside or outside your office. \$999.00

*Programming Tools* is an integrated set of programming aids including extensive program cross-referencing and listing facilities. Program compilation history and file cross-referencing are included. Programming Tools increases programmer productivity. \$799.00

### Try Our Software for Free

Increase the productivity of your computer for 30 days without any obligation. If you don't choose to purchase one of our products, send back the tape. Take advantage of this special limited offer. Fill out the order form and mail it today.



Company Name: \_\_\_\_\_

Address \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

Attention: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

Machine (check one)

- ☐ Adds
- ☐ Honeywell
- ☐ Microdata

Software (check one)

- ☐ File-Sizing Tool
- ☐ Electronic Mail
- ☐ Programming Tools

Tape drive (check one)

- ☐ 800 BPI
- ☐ 1600 BPI

Serial Number if Microdata \_\_\_\_\_

904 Loring Street • San Diego, California 92109 • (619) 483-2919



INTEGRATED SOLUTIONS FOR THE PICK WORLD

**ANNOUNCING THE MOST  
REVOLUTIONARY INNOVATION  
IN SOFTWARE SINCE PICK.**

# **DECISION<sup>TM</sup> S/1000**



**A DATA BASE MANAGER & PROGRAM  
GENERATOR COMPATIBLE WITH MICROS,  
MINIS AND MAINFRAMES USING THE  
PICK OPERATING SYSTEM.**

**IMAGINE—Generating and Documenting  
entire Applications in hours.  
On-line HELP screen in every segment.**

---

**WE'LL BE AT THE FEBRUARY PICK SPECTRUM '84 IN RENO, NEVADA  
BOOTH 718.**

---

**Minimum requirements.**

**Software: Revelation, CDI/100 and MS-DOS.**

**Hardware: 256KB of RAM memory and 2 diskette drives.**



# COMPATIBLE WITH IBM PC, IBM XT, COLUMBIA, CORONA, EAGLE 1600, TI PC AND COMPAQ.

**DECISION** is the most powerful and yet completely friendly Application Program Generator on the market today, designed primarily for Micros using the Pick Operating System.

**DECISION** operates on top of Microsoft MS-DOS, the operating system for the IBM personal computer, creating a logical environment compatible with existing MS-DOS and PICK software.

**DECISION FEATURES:** Dictionary Builder, Menu Builder, Report Builder (Rearrange layout, sorting, break-on, headings, footings, criteria selection), Automatic Documentation Capability, Advance Application Builder (Logic functions, multiple files on-line updates, conditional branching, etc.), Utilities (avoids learning MS-DOS).

**DECISION** allows the non-technical end user to create and build his "own language designed" Dictionaries, Menus, Reports, and Documentation to conform to a complete custom made application.

**DECISION** allows its users to enter, correct, delete and retrieve data at any time. It will also produce reports within any selection criteria desired with no need for programming.

**DECISION** generates a table-driven record that is interpreted at the moment of execution and optionally generates PICK Data Basic source code compatible with Minis using PICK operating systems.

**DECISION** allows the programmer to work off-line from his Mini, using a Micro to design an entire application which, once tested, can be easily uploaded to the Mini for everyone's use.

**DECISION**, with your Micro, becomes the perfect PICK Mini or Mainframe workstation because it gives its user the best of two worlds: RS-232 terminal emulation, design autonomy and the availability of thousands of programs designed for the Micros not available for Minis or Mainframes.

**DECISION** always displays error messages in the same position. In all screens, control characters and communications with the end user are always the same.

**DECISION** allows the programmers to save enormous amounts of time in the development of software applications.

Be among the first to enjoy this most revolutionary, futuristic software product.

The first copies - hot off the press - will be ready for delivery at the February PICK SPECTRUM '84 in Reno, Nevada. See us at Booth 718.

You may order by phone today. The price - \$595 complete. Call (305) 252-2051 today or rush your order by mail to:



**THE SOFTWARE CONNECTION  
INTERNATIONAL, INC.**

9016 S.W. 152 St., Miami, FL 33157

Dealer Inquiries welcomed.

**YES!** I understand the **DECISION S/1000** is guaranteed by The Software Connection for workmanship and may be returned within 30 days for replacement.

- ☐ Check enclosed (we pay freight)  
☐ C.O.D. (you pay freight on delivery)  
☐ Credit card. (Please fill in) ☐ Amer. Exp. ☐ Masterchg. ☐ Visa

**For RUSH SERVICE,  
Dial (305) 252-2051.  
9am to 5pm EST.**

YOUR ACCOUNT NO. ALL DIGITS

YOUR SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

SHIP TO: NAME \_\_\_\_\_ PHONE ( ) \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

BUSINESS NAME \_\_\_\_\_

**MAIL TODAY! THE SOFTWARE CONNECTION**

9016 S.W. 152 STREET, MIAMI, FL 33157 U.S.A.

ITEM	PRICE	TOTAL
DECISION S/1000 w/Manual	\$595	\$
DECISION S/1000 MANUAL	\$ 75	
Handling and Insurance pre-paid by The Software Connection.		
Florida residents add 5% sales tax.		
ORDER TOTAL		\$



# PRAGMA

207 GRANADA DRIVE  
APTOS, CA 95003

BULK RATE  
U.S. POSTAGE  
PAID  
APTOS, CA 95003  
Permit No. 67

... Address Correction Requested

# SYNERGISM '84



**9th  
MICRU  
International  
Conference**

APRIL 8-12, 1984  
Sheraton-Twin Towers  
Orlando, Florida

**MICRU International • P. O. Box 497, Barrington, IL 60010 (312) 381-9190**